An Address
ON
ACUTE DRUNKENNESS.
ITS MEDICO-LEGAL ASPECTS, SYMPTOMS, AND TESTS.

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ACCORDING to the Oxford Dictionary, a drunk man is defined as one who is "overcome with liquor." We note that this is not quite synonymous with alcoholic intoxication or poisoning by alcohol, for a person may have taken a mildly toxic dose of alcohol which may be insufficient to overcome him and make him drunk. We naturally inquire at what stage, then, of alcoholic intoxication a person is to be regarded as drunk. This is not a mere dialectic quibble but a very practical question, for, under certain conditions, a drunken person is liable to various legal penalties.

DEFINITION.

Curiously enough, according to Byrne's Law Dictionary, no statutory definition of drunkenness exists, and "a man may be held drunk for the purpose of one offence when he would not be held drunk for the purpose of another offence. The degree of intoxication which would make an engine-driver drunk if he were driving an express train would not make him drunk if he were walking along a country lane." Mr. Serjeant Stephen, in his Commentaries on the Laws of England, defines drunkenness as "that which deprives men of their reason and occasions in them an artificial madness or phrenzy while it lasts." We medical men have to be even more precise. Therefore, with all deference to the learned legal authorities already quoted, I would submit the following definition for consideration :—

"A drunk person is one who has taken alcohol in sufficient quantity to poison his central nervous system, producing in his ordinary processes of reaction to his surroundings a temporary disorder, which causes him to be a nuisance or danger to himself or others."

In the foregoing definition two classes of transient disability are referred to. One, the intoxicated person's personal incapacity, is mainly a medical question; the other (comprising the final phrase of my definition) has to do with the relations of the drunk man to his fellow-citizens and is a medico-legal affair. In the eyes of the law (and here I am strengthened by the opinion of an eminent solicitor, Mr. H. C. Haldane) a prisoner is liable to punishment not for being merely drunk, but for the combined offences of being drunk and disorderly, drunk and incapable, drunk and unfit to drive a motor-car, and so on. I am not aware that there is now any penalty for being drunk, so long as the drunkenness does not inflict harm or risk on other people. In the reign of James I. the offence of drunkenness was an offence against public morals and convenience and was punished (4 Jac. I., Chap. 5, and 21 Jac. I., Chap. 7, Sect. 3) with the forfeiture of 5*s.* to be paid within one week after conviction to the churchwardens for the use of the poor. These statutes, however, appear to have been repealed by the Licensing Act of 1872 (35 and 36 Vic., Chap. 94, Sect. 12), which runs as follows (the italics are not in the original) :—

"Every person found drunk *in any highway or other public place*, whether a building or not, or on any licensed premises, shall be liable to a penalty not exceeding ten shillings, and on a second conviction within a period of twelve months shall be liable to a penalty not exceeding twenty shillings, and on a third or subsequent occasion within such period of twelve months shall be liable to a penalty not exceeding forty shillings.

"Every person who *in any highway or other public place*, whether a building or not, is guilty while drunk of riotous or disorderly behaviour, or who is drunk while in charge on any highway or other public place of any carriage, horse, cattle, or steam-engine, or who is drunk when in possession of any loaded fire-arms, may be apprehended, and shall be liable to a penalty not exceeding forty shillings, or in the discretion of the Court to imprisonment with or without hard labour for any term not exceeding one month.

"Where the Court commits any person to prison for non-payment of any penalty under this section, the Court may order him to be imprisoned with hard labour."

CAUSATION.

Alcoholic intoxication occurs when the quantity of alcohol absorbed becomes enough to poison the central nervous system, according to the above definition, and to disturb its normal reactions. The total amount necessary to produce nervous symptoms varies widely in different cases. Habituation or acquired tolerance to the drug is one factor; the seasoned toper may consume large and increasing quantities daily for many years and may never show any symptoms of drunkenness, whereas a moderate drinker, or still more a habitual teetotaler, will become acutely drunk if he attempts to keep up with him for an hour. The degree of concentration of the alcohol is another factor so self-evident as to require no further discussion. The majority of cases of alcoholic intoxication nowadays are due to spirit drinking; only in a small proportion is it attributable to light wines or beer. Another factor is the relation between drinking alcohol and the taking of food. Alcohol swallowed before or between meals—i.e., unmixed with food—is more rapidly absorbed than when taken with or immediately after food. Incidentally another curious fact is that sometimes the vomiting of alcohol, or of a mixture of food and strong alcohol, instead of preventing the person from becoming drunk, may actually precipitate the symptoms of acute intoxication. This is probably due to removal, during the act of vomiting, of the protective barrier of mucus from the gastric mucous membrane, thereby rendering the residue of alcohol which remains in the stomach more readily absorbed than before. Fatigue and excitement may also be factors in predisposing to rapid alcoholic intoxication. A sudden fall in atmospheric temperature may also precipitate intoxication. Many a man from sad experience hesitates to leave his host's fireside without an escort, owing to vivid memories of previous open-air tragedies. The most rapid method of alcoholic intoxication which I know of is by means of intravascular injection. Needless to say, this is an accidental and very exceptional affair, never self-induced by the patient.

I can recall the case of a restless young man in whom I was injecting absolute alcohol into the stylo-mastoid foramen, for the purpose of inducing temporary facial palsy so as to relieve facial hemispasm. During this injection he suddenly moved his head; consequently some of the alcohol, perhaps 20 or 30 minims, was accidentally delivered into the adjacent structures, probably into the internal carotid artery, conveying it directly to the brain. Within a few seconds symptoms of acute alcoholic intoxication supervened, with mental confusion, singing, shouting, and fighting; these phenomena subsided completely after a few minutes.

SYMPTOMS AND SIGNS.

The symptoms of alcoholic intoxication are familiar to us all (of course, I only mean by the observation of other persons). May I be allowed to recall the most important of the clinical phenomena.

The early effects of alcohol, like those of similar narcotic drugs, vary from one individual to another, affecting different parts of the central nervous system with varying intensity according to each person's special vulnerability. In moderate doses, one of its early effects is to dull the critical and inhibitory centres in the cerebral cortex. Thus the cares and

worries of everyday life are less keenly felt, so that the individual becomes temporarily happier and more sociable. The Old Book tells us how "wine maketh glad the heart of man," and if this were the end-result of alcoholic celebration many people would be none the worse and possibly the better for it. You may know the story of an eminent London physician, now dead, with a huge and complicated practice, who was asked what he did if he came home at night tired out and found an unsually heavy pile of letters waiting for him. He replied: "I drink a half-bottle of champagne at dinner and then I don't care a damn about letters or anything else." Everyone who organises a charity dinner in aid of some benevolent institution knows how alcohol tends to set free the latent generous impulses of the diners. Therefore the subscription list is never sent round until near the end of the banquet, by which time the pangs of hunger are allayed, the happy guests are sipping vintage port and smoking choice cigars, and their generous instincts are no longer subject to the same degree of inhibition as during the less altruistic period of the hors d'œuvres or soup.

Somewhat larger doses of alcohol cause pathological inhibition of various other functions, producing a mild degree of mental confusion or toxic delirium. At this stage some individuals become humorous and hilarious; others become gloomy and quarrelsome. The old dictum, *in vino veritas*, reminds us of the well-established fact that under the influence of excess of alcohol the individual's temperamental and emotional reactions, no longer controlled by the higher inhibitory centres, now reveal themselves to a critical world. One man becomes garrulous and tells stories, funny or otherwise. Another becomes boastful and aggressive, or even "fighting drunk." Another becomes sentimental and lacrymose; Englishmen call this condition maudlin, Scotsmen call it "greetin' fou." In many persons the sexual passions tend to become uncontrolled. This combination of excess *in Baccho et Venere* is familiar, and unhappily accounts for a large proportion of cases where venereal diseases are acquired by persons who in their sober senses would have taken care to avoid such infections.

Besides the higher psychical functions, the lower nerve-centres for muscular coördination, reflex tonus, &c., may also become imperfectly controlled. Thus, for example, the cerebellum may bear the brunt of the poisoning. The familiar reeling gait of acute alcoholic poisoning with inability to walk accurately along a straight and narrow path is typically cerebellar in type; it is accompanied by muscular hypotonia and by a sensation of giddiness, sometimes moderate in degree, in other cases so severe that the patient lies helpless on the ground, distressingly conscious of his condition but unable to raise his head or trunk without the most violent vertigo, causing him to collapse helplessly on the floor. Cerebellar incoördination may be brought to light by a sudden change in posture. Many a guest realises that he has dined not wisely but too well only when the moment comes for him to rise and leave the festal board. Cerebellar ataxia may also appear in the upper limbs when executing fine movements; the returning roysterer's difficulty in inserting the key into the keyhole of his home is part of the stock-in-trade of the comic journals. These ataxic phenomena are unaccompanied by nystagmus, and this would indicate that the cells of the cerebellar cortex rather than the intracerebellar nuclei are mainly disabled by the poison.

Other familiar toxic phenomena are due to disorder of the ponto-bulbar nuclei, notably those for the ocular muscles beneath the floor of the iter and for the articulatory muscles in the lower part of the medulla. The pupils are usually moderately dilated but at this stage still react to light. Double vision is not uncommon. To illustrate alcoholic diplopia, Hughlings Jackson used to tell of a Scotsman who remarked to his friend at the end of a joyous alcoholic evening, "When ye gang oot o' the door, Tam, ye'll see twa cabs. Jist get intae the first yin, for the second yin's no there."

Dysarthria or indistinctness of articulation is another familiar symptom in alcoholic intoxication, well known to the man in the street. The sufferer who tries to pronounce difficult test-phrases, such as "British Constitution," "terminological inexactitude," "sixty-sixth battery of artillery," and so on, sometimes omits a syllable here and there, or slurs his consonants into one another. In other cases he is alert enough to be conscious of his own difficulty and bravely tries to conceal it, but betrays himself by the undue emphasis with which he pronounces his words, sometimes repeating a specially difficult one twice over, to make sure that he can do it.

Alcoholic vomiting sometimes appears at this stage and may tend temporarily to aggravate the nervous symptoms as already explained; in other cases vomiting is postponed until six or seven hours later, accompanied by bursting headache, as the toxic symptoms are wearing off. The smell of the breath, and of the stomach contents if the patient is vomiting, has a characteristic indescribable aroma, probably due to the admixture of alcohol with the pharyngeal and gastric secretions. The smell of alcohol is conclusive evidence that the patient has recently swallowed alcohol but of nothing more, for it may be produced by a single glass of alcoholic refreshment. Nevertheless, uncharitable observers so often place an unkind interpretation on its presence that even temperate City men, so I am told, often chew a couple of cloves after their mid-day glass of sherry as a sort of smoke-screen. Onions, various cheeses, and other aromatics may also serve the same kindly purpose.

Hiccup, myoclonic contraction of diaphragm, is a pathological bulbar reflex due to abnormal excitation of the inspiratory centre. It occurs in cases of poisoning by alcohol, but also from other blood-borne poisons as in uræmia and from various reflex causes. Alcoholic hiccup occurs at an early or only moderately advanced stage of alcohol poisoning and is commonly associated with dysarthria.

A deeper stage of alcoholic poisoning is that of alcoholic stupor, in which the individual is unconscious, with flaccid limbs and trunk, dilated and sluggish pupils, and warm, moist skin; his temperature is subnormal and his breath, as in the lighter stages of poisoning, smells of alcohol. But even here we must be cautious in our diagnosis. The presence of an alcoholic aroma in a comatose patient, although suggestive, is not conclusive evidence that the coma is of alcoholic origin. Firstly, a patient with an attack of cerebral hæmorrhage may have had alcohol given him just at the onset of his symptoms; or whilst drinking alcohol an intercurrent attack of apoplexy may have supervened; or again, he may have fallen and sustained a head injury, producing cerebral compression. Therefore, every patient who is seen in a condition of stupor or coma coexisting with an alcoholic breath, or in surroundings suggestive of alcoholic poisoning, should be carefully examined for other causes of coma. Unilateral signs such as localised paralysis of a limb, an extensor plantar reflex on one side, inequality of the pupils, and so on, would point to a unilateral intracranial lesion. Pin-point pupils suggest either pontine hæmorrhage (often associated with a high temperature), or opium poisoning (with a subnormal temperature and a cold, clammy skin). The urine should be examined to exclude diabetic and uræmic poisoning, whilst various other poisons, especially opium, veronal, and alcohol itself, can be recognised by appropriate tests of the gastric contents, the urine, and even the cerebro-spinal fluid, preferably withdrawn by cistern-puncture, if the observer is skilful enough. Typical alcoholic stupor has a less profound degree of unconsciousness than in opium or veronal poisoning or than in cerebral hæmorrhage, for the alcoholic patient can usually be roused temporarily by energetic stimulation. As the alcoholic stupor passes off, it is followed by sleep, from which the patient wakes up with an acute bursting headache, dryness of the mouth (the so-called parrot's tongue), intense thirst, nausea, and sometimes vomiting, after which he begins to feel better. The

cortical symptoms, cerebral and cerebellar, together with the diplopia, the dysarthria, and other ponto-bulbar phenomena which characterised the onset of the process of intoxication, do not recur on the "morning after the night before."

Amongst the rarer paralytic phenomena following acute alcoholic poisoning must be mentioned the tragic one of acute optic atrophy. No case of this sort, so far as I am aware, has yet been recorded in England, but it has been frequently observed in the United States especially since the days of prohibition and extensive smuggling, or as the Americans call it, "boot-legging." It results from the drinking of methylated alcohol or wood-spirit. Such a patient, after recovery from his alcoholic stupor, becomes rapidly and permanently blind owing to acute retro-bulbar degeneration of the optic nerves.

TESTS FOR DRUNKENNESS.

We now come to the practical problem which has to be solved daily—namely, whether a given individual is drunk or not. The diagnosis is often so easy that it is arrived at by what trade-unionists would term unskilled labour—i.e., by non-medical observers. As a matter of fact, in most cases the diagnosis is made by a policeman, who has then to decide whether to take the person into custody, for the safety of the drunk man himself or for that of his fellow-citizens. At the police-station the police officer's diagnosis is confirmed or otherwise by the police surgeon, who may be too open to suggestion. And here I would like to make it perfectly clear that in nine cases out of ten the policeman's diagnosis is correct.

A good deal of loose thinking has been going on upon the subject of so-called tests for drunkenness. With the possible exception of a positive reaction for alcohol in the cerebro-spinal fluid, to which I shall refer later, there is no single clinical sign which is pathognomonic of alcoholic poisoning of the central nervous system, because drunkenness is not a simple clinical entity like a broken bone or a consolidated lung, but a way in which certain nervous tissues react, evidenced by a whole series of transient phenomena following an initial poisoning.

The first question we always have to ask ourselves is. "Has the person recently taken alcohol?" If he has not, we need proceed no farther. If we smell alcohol in his breath, this is prima facie evidence of the possibility of alcohol poisoning, but only so far as it goes. And, by the way, it is important that the observer who claims to recognise the smell of alcohol in others, whether he be a police-officer or medical officer, shall himself be free from recent alcoholic consumption. Second, has he taken alcohol in such quantity as to produce disorder of the central nervous system and to render his reactions to the outer world temporarily abnormal? This is where the various so-called tests for drunkenness come in. But it must be remembered that these are not tests for alcoholic poisoning itself, but only for cerebral, cerebellar, ponto-bulbar, or other disorders. Such disorders may be due to alcoholic intoxication, but they may also be produced by various other causes. Take, for example, the common case where a policeman arrests a man for being drunk and incapable in a public place. When asked in the witness-box what was the the condition of the accused, the constable usually replies confidently and dogmatically, "He was drunk." If pressed by the court or by the defending counsel to say how he knew that the accused was drunk, he generally says, "He smelt of drink; he was disorderly in his conduct; he spoke indistinctly; and he staggered in walking." Such facts as these are certainly strong presumptive evidence of drunkenness. But, being human, even a policeman may be mistaken, for, apart from the smell of alcohol, everyone of the foregoing evidences of drunkenness may be found in certain persons who are perfectly sober. As crude examples of what I mean, it is easy to understand how an individual with the unsteady gait of locomotor ataxia or of cerebellar or labyrinthine disease, or a patient with dysarthria from bulbar palsy, palatal deficiency, or even with a stammer, or another who is nervous, angry, or emotionally excited from perfectly legitimate cause, say after a street accident, may quite innocently be charged with being drunk. How are we to avoid such errors? Sometimes by obtaining evidence as to the presence of these disabilities before the onset of the alleged intoxication, and in any case by examining him after the supposed drunkenness has had time to pass away when, if he is suffering from a gross organic lesion, he will still be found to display the same clinical disorders, with the exception that the alcoholic aroma has now faded from his breath "like the snows of yester year."

A little while ago a medical colleague, who suffers from a large perforation of the palate, together with chronic Eustachian catarrh and frequent labyrinthine vertigo, was driving his motor-car when he had to swerve to avoid someone at a street corner. His car ran on to the side path, bruising the legs of a bystander. As bad luck would have it, he had recently had a glass of gin and vermouth. The police-constable, noticing his alcoholic breath and observing his unsteady gait and indistinct articulation, promptly, and quite reasonably, arrested him. He was accused, and convicted, of being drunk in charge of a motor-car. Only on appeal was he able to establish the facts of his chronic palatal deficiency and recurrent labyrinthine vertigo and to secure acquittal on the charge of drunkenness.

In doubtful cases the court, in my opinion, should insist on a second examination being carried out more frequently than it does at present, which is almost never.

Common Clinical Phenomena Used as Tests.

Let us now briefly consider some of the commoner clinical phenomena employed by medical men as tests in the recognition of drunkenness at a given moment. And once more let me emphasise the fact that these are not in themselves tests for alcoholic poisoning, but merely for cerebral, cerebellar, or ponto-bulbar disorders, as the case may be.

Disorder of the higher cerebral centres may be evidenced by the presence of mental confusion, incoherence of thought and speech, emotional excitement on the one hand or apathy on the other. Sensation may also be disordered so that the patient is relatively insensitive to stimuli, especially painful stimuli, and may cut, bruise, or otherwise injure himself without noticing it. Such cerebral phenomena when transient, of recent origin, and associated with a recent dose of alcohol, are strong presumptive evidence of drunkenness. But we have to bear in mind the possibility that the patient may be habitually emotional or excitable, that he may have recently sustained some acute emotional or physical shock adequate to produce these phenomena in a perfectly sober person, or that the patient may be actually insane.

Cerebellar disorder is recognised by its characteristic incoördination of voluntary movement and by its muscular hypotonia. It is most readily detected in the lower limbs. The reeling cerebellar gait, whether from alcoholic poisoning or from other causes, is noticeable by onlookers and sometimes by the patient himself, who takes "more than his share of the pavement." Amongst the common manœuvres for eliciting the presence of cerebellar ataxia, a favourite one is to ask the patient to walk along a straight and narrow path, then to turn quickly and come back again, The more difficult feat of walking heel-and-toe along a chalk line is an entirely artificial test which quite a number of sober persons may fail to accomplish. Failure to stand on one leg with the eyes shut, of which I have recently read as a supposed test of cerebellar disorder, is a mild acrobatic feat which the most sober of us might easily fail to execute during the emotional excitement following police arrest. The most exemplary abstainer may well feel apprehensive if he falls into the hands of a medical officer who exacts so high a standard of cerebellar efficiency.

Cerebellar ataxia of the upper limbs is conveniently tested by asking the patient to place one finger quickly on our own finger-tip, or to raise a glass of

fluid (water, of course) to his lips, or to carry out the more domestic ordeal of putting a key into its keyhole. In cerebellar disorder these movements are performed jerkily, partly owing to deficient muscular tonus and partly from inability correctly to estimate the range, so that the patient cannot arrest the movement at the desired target but either plunges past it, or may underestimate the range of movement and stops short before reaching the mark, finally swooping down on it with excessive force.

Tabetic ataxia of the lower limbs may be mistaken for drunkenness, but only by a careless medical observer. Unlike cerebellar ataxia, tabetic ataxia is aggravated by closing the eyes. Absence of the ankle-jerks and usually also of the knee-jerks, together with the condition of the pupils, &c., will usually prevent a mistaken diagnosis of this sort.

Turning now to the phenomena of *ponto-bulbar disorder*, dilatation of the pupils is a sign upon which considerable emphasis has often been laid. In my opinion, its importance is often exaggerated; the pupillary dilatation in alcoholic intoxication is usually moderate in degree, and in slighter degrees of intoxication sometimes absent. In alcoholic stupor, on the other hand, dilatation of the pupils is the rule with sluggish response to light.

A few days ago, when sitting at a table in a Pullman carriage, during a short railway journey of an hour and a half, I found myself opposite a fellow-passenger who consumed, under my own eyes, five large whiskies-and-sodas in rapid succession, thereby incidentally providing me with an opportunity of studying with ease and comfort the onset of toxic nervous phenomena. Towards the end of the journey he became mentally confused, happy, noisy, and slightly dysarthric. As he leaned hospitably across the table to offer me, although a complete stranger, the compliments of the season, I carefully observed his pupils; they were not dilated and reacted normally to light.

Transient weakness of the external ocular muscles is frequently produced during the process of alcohol poisoning. In its milder degrees it manifests itself by deficient power of convergence, and when combined with mild cerebral symptoms which so frequently coexist, this helps to account for the drunk man's difficulty in visual fixation and for his characteristic fatuous look. A somewhat greater degree of weakness of the ocular muscles produces double vision, a symptom which usually impresses itself even on the sufferer's fuddled consciousness. Disorder of lower bulbar nuclei may produce temporary indistinctness of articulation or dysarthria. We must be careful to exclude dysarthia from various organic causes, whether in the brain-stem or bulbar nerves, or in the palate, lips, or tongue. Moreover, ocular and bulbar symptoms, not unlike those of alcoholic poisoning, varying in degree and sometimes of transient duration, are also met with in myasthenia gravis, admittedly a rare disease.

Amongst the *vascular and visceral phenomena* indicative of disorder of the vegetative nerve-cells, some of which are situated within the brain-stem, we may mention the flushed face, rapid pulse, and warm, sweating skin, also the occurrence of salivation and vomiting, although this latter symptom may be partly gastric in origin.

The pupils, when they happen to be dilated, still preserve their reaction to light, contrasted with the extremely dilated and insensitive pupils of poisoning by belladonna, hyoscine, and similar drugs.

Disorder of the reflexes, in my opinion, is of no practical value in the recognition of alcoholic poisoning. Exaggeration of the knee-jerks and other deep reflexes is sometimes mentioned by medical officers as a sign indicating acute alcoholic poisoning, but the degree of briskness of these reflexes varies so widely in normal individuals that we cannot regard their exaggeration as of any diagnostic significance. Ankle clonus never occurs from acute alcoholic poisoning; nor do we find extensor plantar responses, which may be present in uræmic coma or that of poisoning by opium, sulphonal, veronal, or coal-gas.

UNCONSCIOUS STAGE OF ALCOHOLIC INTOXICATION.

In the deepest stage of alcoholic intoxication, when the whole brain is inactive with the exception of the vital medullary centres, there results a condition in which the patient is unconscious with flaccid limbs and trunk. The depth of unconsciousness ranges from stupor to coma, according to whether the patient can be roused from his unconsciousness or not by energetic stimuli. In profound alcoholic poisoning stupor and not coma is what we find, even when the patient is what is called "dead drunk." In recognising the cause of such unconsciousness the *smell of the breath* is of value, with certain limitations to which I have already referred. Alcoholic stupor is usually associated with a warm, moist skin, and accompanied by the characteristic alcoholic odour, coexisting with fairly wide dilatation of the pupils, which still react to a bright light. The odour of the breath may point to poisons other than alcohol. The smell of opium is characteristic when laudanum has been taken by the mouth, and in opium or morphine poisoning the pupils are closely contracted. The toxic coma of uræmia is often accompanied by a urinous odour in the breath and that of diabetic coma by the sweet hay-like smell of acetone.

Analysis of the urine is helpful in cases of deep unconsciousness. In alcoholic poisoning alcohol can be detected by adding bichromate of potassium solution followed by a few drops of strong sulphuric acid; if alcohol is present, a bright green colour appears, together with a smell of aldehyde. Another simple test is by adding an equal quantity of a strong solution of iodine in iodide of potassium, followed by a few drops of caustic potash, drop by drop, until the iodine is decolorised. Iodoform crystals are produced, accompanied by a characteristic odour. Other substances should also be looked for in the urine in cases of unconsciousness. Patients with diabetic coma will show not only sugar but also oxybutyric acid, aceto-acetic acid, and acetone. The presence of albumin, on the other hand, together with casts and epithelial elements, is suggestive of uræmic coma, although in some cases of interstitial nephritis albumin and casts may be scanty or absent.

Tests can also be carried out on the *cerebro-spinal fluid*. To my mind the presence of alcohol in the cerebro-spinal fluid is really the only sign at our disposal which can be regarded as pathognomonic. If positive, it is conclusive evidence of alcoholic poisoning which has actually reached the central nervous system. Unfortunately, it is not always feasible to carry out lumbar or, still more, cistern puncture. Through the kindness of my house physician, Dr. J. G. Wilson, I have recently had the cerebro-spinal fluid analysed for alcohol in three recent cases of severe alcoholic poisoning, with a positive result in each case. Incidentally, in uræmic coma urea is present in excess in the cerebro-spinal fluid and an excess of sugar in diabetic coma.

SUMMARY OF DIAGNOSTIC PROCEDURE.

Let me here offer a short summary of the procedure suitable to be adopted when we are called to see a comatose patient:—

First we inquire into the history, as to the patient's previous health, whether he has recently had a head injury, under what circumstances he was discovered to be unconscious, whether the unconsciousness was sudden or gradual in onset and whether it was preceded by other symptoms such as convulsions or headache. We then examine the patient, feel the head for signs of injury, smell the breath, examine the pupils, noting their size, equality or inequality, and their reaction to light. We examine the heart and note the character and frequency of the pulse and respirations. We note the radial systolic blood pressure and measure it by a manometer if possible. We observe whether the face is symmetrical or not, and whether there is conjugate deviation of the head and eyes in any direction. The optic discs and fundi should be examined in all cases of coma or stupor. We lift the limbs in turn and let them fall, observing whether

there is any difference between the flaccidity of the two sides. We test the knee- and ankle-jerks and examine the plantar and abdominal reflexes on both sides. Then we pass a catheter, draw off the urine, note its specific gravity, and test it for albumin, for sugar, and for acetone. Finally we note the temperature in both axillæ, and in all doubtful cases we perform a lumbar or cistern puncture and examine the cerebro-spinal fluid. In patients from malarious districts we should also examine a blood-film for the malaria parasite.

Looking back on the successive stages of alcoholic poisoning of the nervous system, it is evident that the average case of drunkenness presents little or no difficulty in diagnosis. The really difficult cases are at the two extremes of the series—namely, those in which the impairment of cerebral function is very slight and those in which it is so profound as to cause deep unconsciousness or stupor.

Let us take the slighter cases first. In such cases two distinct and successive facts must be proved to have occurred in order to establish a diagnosis of drunkenness. First, it must be shown that the person has recently taken alcohol. The immediate antecedent history of the case, the surroundings under which the person came under observation by the police, the alcoholic odour of the person's breath, are all suggestive, so far as they go, but not conclusive. Whilst a drunken man's breath will usually smell of alcohol, so may a perfectly sober man's, otherwise it would be dangerous for an archbishop to drink a glass of sherry with his lunch. Conversely, the absence of alcoholic odour in the breath, so far as it goes, is against the presence of alcoholic poisoning. Second, the reactions of the person's central nervous system to his surroundings must be shown to be temporarily so disordered as to be injurious to himself or others.

If a person already suffers from disease of the central nervous system, thereby presenting corresponding cerebral, cerebellar, ponto-bulbar, or other symptoms, and happens to come under observation after taking alcohol in the most moderate amount, he may easily be the victim of an injustice. But in such a patient the phenomena will not be temporary; they will be present both before and after the alleged alcoholic poisoning. Apart from pre-existing diseases of the nervous system, even anatomical abnormalities, such as deformities of the lower limbs, have been known to give rise to mistakes. I remember the case of a taxi-driver with deformed feet who had the misfortune to be arrested on a cold winter's night outside a bar after consuming a single glass of ginger wine. A police officer, quite reasonably, suspected him of being drunk, but subsequent investigation showed that the man's deformity was the adequate cause of his chronic insecurity of gait.

Excluding people with pre-existing disabilities of various sorts, and coming to temporary disorders of function, we have a class of persons in whom transient excitement—e.g., the fact of being arrested—may simulate alcoholic poisoning of the central nervous system. This is really the most difficult case of all. Where the decision is doubtful, it is the duty of the medical officer, resisting the human tendency to corroborate without careful consideration the snapshot diagnosis of the police-constable, to give the patient the benefit of the doubt. And I am sure that many medical officers do pursue this course. If an excited person, examined in the humiliating environment of a police-station, is nevertheless able to give a clear and coherent account of his recent doings, his transient excitement and indignation are not necessarily evidence of toxic cortical disorder. If his breath does not smell of alcohol, this is in favour of sobriety; on the other hand, if it does smell of alcohol, this, so far as it goes, is in favour of alcoholic poisoning. But again I would insist that even the combination of an alcoholic odour with emotional excitement is not sufficient evidence of cerebral disorder due to alcohol.

Matters are different, however, in cases where, superadded to the alcoholic breath and emotional excitement, we have, as is so commonly found, incoherence of thought and speech together with signs of temporary cerebellar and ponto-bulbar disorder. Unsteadiness of the limbs, evidenced by a staggering gait and by difficulty in performing coördinated movements such as pointing to or picking up a small object, true dysarthria, known to be different from the sufferer's ordinary articulation, and diplopia, if it can be demonstrated, are, all of them, definite evidence of disorder of central nervous mechanisms. Accessory phenomena, inconclusive by themselves, such as hiccup, a warm, moist skin, flushing of the face, &c., are valuable corroborative signs. To my mind the best physical evidence of all is a positive reaction for alcohol in the cerebro-spinal fluid. It must be admitted, however, that few persons are likely to submit voluntarily, and fewer still are likely to volunteer, to have this valuable diagnostic procedure carried out.

In the deeper stages of alcoholic poisoning where stupor has supervened, the history and surroundings of the case, together with the appearance of the patient are usually characteristic, but we must always be careful to exclude the possibility of other varieties of coma, not only from outside poisons (such as opium, veronal, ether, the late stages of belladonna and hyoscine poisoning, and so on), but from autogenous toxins as in diabetic and uræmic coma. Gross vascular lesions must also be borne in mind, such as cerebral or pontine hæmorrhage, and traumatic lesions, as in head injuries.

There is no short cut to accurate diagnosis. Our only safe guide is by means of careful and systematic clinical examination. The main difference between a superior medical opinion and one which is less valuable, is not that the one man necessarily knows so much more than the other, but that he is wise enough to make a more careful and more accurate examination of his cases.

The Relation OF MEDICINE TO THE NATURAL SCIENCES.

A Presidential Address delivered to the Science Masters' Association on Jan. 5th, 1925,

BY SIR BERKELEY MOYNIHAN, BART., K.C.M.G., F.R.C.S. ENG.,
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[IN the earlier sections of his address Sir Berkeley Moynihan traced from prehistoric times, through Grecian and Roman civilisation, the concept and development of the scientific idea—"the idea that the world in which we live is governed by laws, that the laws can be formulated by a close observation of their methods of working and by their failures to work, and that by experiment the processes by which they work can be tested." He then showed how the science of the Greeks from the first to the last was the child of Medicine; Hippocrates was the true originator of inductive logic, but his followers for centuries added nothing to the science or the art of medicine, being only concerned with following uncritically the teachings of the master. He alluded to the one great exception to an acquiescence in tradition which marked five centuries—namely, the famous anatomical work done at Alexandria. Later came the experimental work of Galen, the parent of the deductive method, and he with Hippocrates ruled the science of medicine until at the Renaissance, Bologna, Padua, and Salerno became centres for the study of medicine. There followed a great development of natural science largely due to medicine, which, said Sir Berkeley Moynihan, "has in truth proved the fairy godmother of many of the natural sciences," for Copernicus, whose views were later confirmed by Galileo, was a medical man, and William Gilbert, the

author of "De Magnete" and the founder in modern times of experimental science, was also a physician. Among famous chemists and physicists who have been doctors of medicine, the lecturer mentioned Robert Boyle, John Mayow, Boerhaave, W. H. Wollaston, the inventor of the reflecting goniometer, and Young, who revived and established the undulatory theory of light and unlocked by the Rosetta stone the mystery of hieroglyphics. To these may be added the Florentine physician known as Steno, the discoverer of the parotid duct, who was a pioneer in mineralogy, while the famous Linnæus was a Doctor of Medicine. Sir Berkeley Moynihan continued:—]

The influence of medicine, and of the training that a career of medicine necessarily involved, has therefore been very considerable in the creation and in the development of many of the natural sciences. Yet for several centuries the growth of medicine hardly kept pace with the slowest of its intellectual children. For despite a few but most conspicuous exceptions the methods were sterile methods; they were deliberately designed to search the ancient written words, and were timorous or disdainful of contact with the raw truths of daily experience. A search in the common law, however industrious, and however ingenious and protracted, can reveal nothing that is not therein contained. Criticism, exposition, interpretation, correlation of any text, however honoured, can never lead to discovery; no creative act is thereby involved. And medicine for generations was turned in upon itself, and sought no new experience.

It is not difficult now to see some reasons for this long delay. In organic diseases there are structural changes in the tissues. These structural changes had never yet been studied with care, because of the indignity of manual employment, nor had any of the morbid parts been submitted to examination by the microscope. The science of pathological anatomy created by Morgagni (1682–1771) and by John Hunter gave for the first time the opportunities of correlating the symptoms observed during the life-time of a patient with the changes found on examination of the body after death. To examine these changes during the life-time of the patient was not possible, for every wound was serious, and any opening of a body cavity almost inevitably fatal. Lister's work, founded upon and inspired by the work of Pasteur, made all surgical procedures safe, and gave to surgery the strongest weapon ever forged, not only for the relief and cure of disease, but also for the pursuit of a purposeful inquiry into structural changes in the bodies of those afflicted by disease, in an early stage of the morbid changes. So at last the two methods of scientific inquiry, after so long a divorce, came together. Observation could be tested by inquiry into the pathological changes then present; and analogical research could now safely be conducted upon the bodies of animals.

THE EXPERIMENTAL METHOD IN MEDICINE.

The tendency in modern medicine is unhappily threatening to go astray. The methods of experiment, necessary though they are to all right and rapid progress, have been given an undue relative importance and have been regarded as the chief, or even the only, means by which truth can be discovered or established. In the physical sciences observation, hypothesis, and experiment are, perhaps, the whole story, and of chemistry, which seems more and more to become a province of physics, the same is true. In other sciences experiment may play no great part, our knowledge being chiefly gained by observation, and by a steady, if slow, progress from individual and isolated truths to a universal law. Of such geology is, perhaps, the best example. In medicine there should be a close confederacy between observation and experiment; but in observation there lie difficulties far greater than in any other science, and in experiment we may often argue only by an analogy. To observe with accuracy in the physical sciences is a matter which chiefly concerns the trained observer; the cold facts presented are there, without distortion and free from gloss; power of perception and of interpretation, patience, and strict intellectual integrity on the part of the recorder are the chief qualities required. In medicine the conditions are not presented with the same simplicity. The symptoms, and even sometimes the signs, of disease are coloured by the personality of a patient, and may be hidden behind a veil that at first seems quite impenetrable. To elicit a true anamnesis demands, not seldom, the most inexhaustible patience, the most acute perception of relevancies; an accurate measurement of those deflections from truth which are the unconscious results of a patient's temperament or fleeting emotions; the re-examination of first impressions in the light of later revelations, each step being taken without prejudice. All this is more anxious and more difficult than any placid observations carried out in the laboratories, and needs a different and, I hold, a far sterner training. The close and continued observation of a multitude of facts, at first apparently disjointed and irrelevant, each captured only by surmounting difficulties that may baffle one repeatedly; the exercise of an unbiased faculty of reason upon all these until each takes its true place in the series, and the combination of observed and appraised truths into an accurate diagnosis or prognosis may require the full exercise of the powers of the mind. The Hippocratic method still finds an arduous and its noblest use in the science and in the art of medicine. When so much has been won from ignorance each step in the progress may then be tested, illustrated, or explained by experiment. We must, as Harvey said, seek out the secrets of Nature by way of experiment. But, again, it is only observation that discovers exactly where the secrets lie, what the experiment should be, and precisely what it is asked to explain. Yet experiment upon animals in the laboratory touching any knowledge gained by contact with the disease of man may be open to error. Such experiment is necessary upon a scale far larger than any upon which we in this country are permitted to engage. The lessons to be learnt are innumerable and of high value. But we must not repeat the error of Galen, and argue "analogically" with too ready an acceptance of the accuracy of the analogy. Experiments may and do reveal much of the intricate processes of physiology, but in pathology their value is a little restricted. So many factors enter into the origin, the course, and the interpretation of disease in man that nothing exactly similar can be expected to occur in animals. This warning seems necessary. For close as the relationship between laboratory methods and clinical experience should continue to be, we cannot fail to recognise that it is clinical experience which must govern our decisions, and that laboratory methods are chiefly necessary as auxiliaries and as illustrations rather than as final and controlling influences. We have not proved ourselves free from the grave error of allowing the clear and irrefutable evidences of clinical experience to be placed in a position of subservience to the disclosures of the laboratory. The proof of the validity of laboratory works in connexion with human diseases is not their success in the test-tube or retort, but in the effects witnessed when applied to the patient in clinical work. The physician or the surgeon must needs pay due regard to all the help that can be gained by the researches, the tests, the relevant experiments of the laboratories; but the right appraisement of the value of each, and the use of the knowledge so placed at his disposal are his responsibility alone. For a disease is not the sum of its symptoms, nor of its chemical or microbic reactions, but is a morbid state in a living patient; and it is in dealing with his patient, when fully cognisant of all that can be learnt of him, that the physician proves his power.

SURGERY: ITS HIGHEST FORM.

The highest form of the experimental method in medicine is that which surgery offers. As by swift changes surgery has grown safer and still more safe, until at last it can be claimed that a further increase

of safety for the patient can only depend upon an earlier access of the surgeon to him, the therapeutic side of our craft has not remained the only one. Surgery is now a strong arm of research, and has accomplished much in many directions. In the last half century the operation theatre has proved to be a most procreant laboratory. Our knowledge of all abdominal diseases has been so greatly and so quickly changed by operative research, that a complete revolution in thought and in action has resulted. I can think of few researches which compare either in scientific or in therapeutic importance with those which have been made by the surgeon during the last 50 years. Certainly no more fruitful combination of the inductive method with the method of apposite and felicitous experiment has ever been known. We look forward now to a time of help from our laboratory associates which may bring us to an understanding of the causes of those local diseases whose consequences alone are eradicated or rendered less injurious by the operations we perform. The first step at least has already been won by the surgeon in demonstrating the inter-relation of various morbid states, but the task remains to be carried on, and perhaps solved, by the methods of the laboratory along lines which our clinical experience will indicate as necessary. Experimental methods may offer us the proof of a truth which clinical observation has already confidently recognised. Every Arctic explorer, for example, knew of the necessity for certain ingredients in the dietary of his shipmates. Gowland Hopkins has given the reason of the ancient experience in terms of vitamins. On a large scale among our troops in Mesopotamia the application of this new knowledge received the clearest illustrations. Among the Indian troops an absence of "C" vitamin involved 20,000 men in an attack of scurvy; and among the British troops an absence of "B" vitamin caused a heavy incidence of beri-beri. Had such occurrences taken place at the time of the South African war an explanation, true in essentials, would no doubt have been forthcoming: but there would have been no approach to the precise and accurate and demonstrable explanation which the work of Gowland Hopkins now allows us confidently to offer. It may be that we expect too much at first from laboratory methods. One of the new weapons put by them into our hands is that of vaccine therapy. No one can deny the occasional value, and at certain times the incomparable value, of this procedure; nor can any deny the grave disappointments which have so frequently attended its adoption. The hypothesis upon which it is based is probably very incomplete and many new aspects of a great truth remain to be discovered. But so far as focal infections are concerned our trust is still in operative treatment. The great triumph of vaccine therapy is in prophylaxis, which is difficult to measure in the individual case but easy to recognise in the mass. The complete record of the incidence of enteric fever in our own army, and in other armies in the last war, is evidence enough to convince the most sceptical.

EXAMPLES: CANCER AND TUBERCLE.

At this moment there are laboratories all over the world engaged in cancer research. The quest is for the cause of cancer. We do not know whether a micro-organism is sometimes, or never, or always, the agent: whether a habit of body, or a congenital disposition, or a mode of life contributes something to a larger causative influence. We do know that repeated minor insults to certain surfaces will produce a local response which, though not at first cancerous, makes haste to become so. If the cause of cancer is discovered we may learn how to prevent cancer, or even be brought to realise that there is a method of cure which directly depends upon our knowledge of the cause. But let us never forget that we already know how to eradicate cancer from almost all the parts of the body in which it commonly occurs. Nothing is more certain in clinical experience than this: that cancer, whatever its occult nature may be, is in truth a local disease in the first instance; that it remains a local disease for periods which are sometimes short and sometimes very long, and that if then treated by operative methods upon a plan conformable to modern notions the disease is completely and permanently eradicated. The unending difficulty is to obtain access to the disease while it is still in the local stage. This, I venture to assert, imposes a new and larger duty upon the profession of medicine, the duty to enlighten the public as to the early symptoms and signs and to make it a matter of common knowledge that cancer is not, as everyone supposes, a disease from whose immediate or recurrent ravages there is no escape. We must broadcast the truth that, with few exceptions, an early operation for any cancerous disease is attended by the slightest risk, if, indeed, by any, and may confidently be expected to confer a permanent immunity from a return of the same disease. We do not know the cause, or causes, of cancer, but we do certainly know how to "cure" it, if only early opportunities are vouchsafed to us.

We most gratefully pay our tribute to Koch for his discovery of the tubercle bacillus. A knowledge of the existence of this organism, of its properties, of its causative influence in those "strumous" diseases whose exact nature was formerly unsuspected is all to the good. But our therapeutic power has not been increased by our recognition of the existence of the bacillus. No chemical attack made upon the bacillus while in the living body can destroy it, and the extent to which, if at all, we can augment the defensive powers of the body by any vaccine therapy is quite uncertain. The measures we adopt in the treatment both of the medical and of the surgical forms of tuberculosis are really independent of our acquaintance with the properties of the bacillus; they are measures which clinical experience little by little has indicated and improved. In other diseases, as in tetanus and in diphtheria, our therapeutic efficiency depends almost entirely upon the knowledge of their specific bacterial origin. All the efforts of all of us in league together are therefore necessary in our struggle against every disease, and we must surely base our strength not less upon the methods of the father of the inductive sciences, Hippocrates, than upon Galen, the father of the experimental method.

FEEDING OF THE ABNORMAL BABY BY THE SO-CALLED TRUBY KING METHODS.

A REVIEW OF THIRTY-NINE CASES.

BY MILDRED M. BURGESS, M.D. LOND.

THE object of this paper is to endeavour to show that however reasonable and scientific the theory that the formula of a baby's feed should bear a close analogy to that of human milk, it fails in many cases in its practical application, particularly in the abnormal baby. After a considerable experience in percentage feeding, I am forced to the conclusion that there is something more in human milk than is expressed in its percentage formula and caloric value, and that until we find a fat that can be tolerated by the infant we are doing incalculable harm to the infant population by insisting on a strict adherence to percentage feeding.

The 39 cases described below passed through the infants' ward of a babies' dietetic hospital during 1923. The remaining cases in the ward are not considered for various reasons; some were non-dietetic cases, some prematures, some on a new dried milk, in some the stay was too short for a satisfactory test, and some died from causes other than dietetic.

This paper contains: (*a*) A brief description of the methods adopted; (*b*) a summary of the cases under observation; (*c*) criticisms and deductions drawn from the results of the treatment.

Methods of Feeding Adopted.

The treatment (feeding) was carried out as closely as possible to the routine methods taught by the advocates of the system, and we had the advantage of a nursing staff trained in these methods. In every case the cause of admission was nutritional or dietetic—e.g., wasting, not getting on, screaming, sudden weaning, dyspepsia, or difficult feeding. In the majority of cases not one, but many of the above troubles were present. On admission the baby was weighed and a food chosen from one of the formulæ given below (usually H.M. III.) with no added fat. The amounts were regulated by a comparison with the previous feeding (if known) and by a consideration of the baby's theoretical food requirements. If the stools were unsatisfactory a dose of castor oil was given.

Formulæ.

H.M. III. (New Formula).

	Sug.	Fat.	Prot.
Milk, 8 oz.	P.c. comp...	6·9 ..	3·3 .. 1·3
Lime water, 1½ oz.	N.a.f...	6·9 ..	1·4 .. 1·3
Lactose, 8 tsf., or cane sugar, 6 tsf., or dextri-maltose, 10 tsf.	Cal. value		18·8 per oz.
Cod-liver oil emulsion, 5 level tsf. in 24 hrs.	N.a.f...		13·3 ,,
Water to 20 oz.			

H.M. III. (Old Formula).

	Sug.	Fat.	Prot.
Milk, 10 oz.	P.c. comp...	6·9 ..	3·4 .. 1·6
Lime water, 1½ oz.	N.a.f...	6·9 ..	1·7 .. 1·6
Lactose, 7 level tsf., or cane sugar, 5½ level tsf., or dextri-maltose, 9 level tsf.	Cal. value		19·0 per oz.
50% C.L.O. emulsion, 4 tsf. in 24 hrs.	N.a.f...		13·9 ,,
Water to 20 oz.			

H.M. I.

	Sug.	Fat.	Prot.
Milk, 6 oz.	P.c. comp...	7·1 ..	3·1 .. 1·3
Whey, 6¾ oz.	N.a.f...	7·1 ..	1·4 .. 1·3
Lime water, 1 oz.	Cal. value		18·6 per oz.
Lactose, 6½ tsf.	N.a.f...		12·6 ,,
50% C.L.O. emulsion, ¾ oz. = 4 tsf.			
Water to 20 oz.			

R. K. (Ideal).

	Sug.	Fat.	Prot.
Ideal milk, 3⅓ oz. 1 oz. = 6 tsf.	P.c. comp...	7·5 ..	3·0 .. 1·4
Lactose, 1½ oz. = 9 tsf.	N.a.f...	7·5 ..	1·4 .. 1·4
50% C.L.O. emulsion, ¾ oz.	Cal. value		18·5 per oz.
Water to 20 oz.	N.a.f...		14·1 ,,

Modified Dried Milk.

	Sug.	Fat.	Prot.
Cow and Gate, 1½ oz.	P.c. comp...	7·1 ..	3·1 .. 1·5
Cane sugar, 1½ oz.	Cal. value		18·25 per oz.
50% C.L.O. emulsion, 1 oz.			
Water up to 30 oz.			

P.c. comp. = Percentage composition. Cal. = Caloric.
N.a.f. = No added fat. Tsf. = Teaspoonfuls.

Orange or lemon juice was given daily and an abundance of plain boiled water.

Value of Boiled Breast Milk.—Breast milk was resorted to when all modifications failed, or if a baby became very ill. It was given in 19 of the 39 cases. An interesting point emerging from this analysis is the value of boiled breast milk. The milk was taken from healthy mothers at lying-in hospitals and to render it sterile it was boiled. It was given in the bottle added to the milk mixture. A curious fact is that the boiling seemed to have no deleterious effect on its value, thereby rather contradicting our previous opinion that one of the chief advantages of breast milk is that it comes straight from the mother to the child unaltered by sterilisation. In the majority of cases a few ounces only were given in the 24 hours, the "dose" being almost medicinal in some cases, and yet in a very large number of cases the effect on the child's digestive organs was rapid, satisfactory and permanent. In some cases, after only a few days' supply of breast milk, fat could be borne where previously it could not be tolerated. Whether some risks are not attendant on its use is another matter.

Ordinary cases were put on to H.M. III. (old formula), plain or peptonised. More difficult cases had Ideal milk, and a few were given whey and milk. Dried milk was used in a few cases. The ideal was to grade all modifications gradually on to H.M. III. After 6 months of age Benger's food was given in some cases, but the babies were graded off this before they were discharged.

There is no indication that any particular food was responsible for the breakdowns, although cow's milk was found to be rather more difficult of digestion than Ideal. Ideal was rarely used at the start, but after a breakdown the baby was sometimes put on to this.

The fat was given in the form of cod-liver oil emulsion (50 per cent.), prepared by a Grimsby firm. The amounts introduced started with $^1/_{12}$ oz. in the 24 hours, divided as nearly as possible between each feed, and the increases were made by $^1/_{12}$ oz. (sometimes $^1/_6$) at intervals of a varying number of days. Not more than $1^1/_{12}$ oz. was given in the 24 hours. When a breakdown occurred, as was shown by relaxed, curdy stools with or without vomiting, the fat was omitted or reduced, but as soon as the stools became normal again the fat was reintroduced, beginning with the smallest amount.

I am of opinion that in these cases the "curds" passed in the stools were invariably fat and not protein. They were soft and easily smoothed out. These so-called "curds" sometimes occurred even when the baby was on a fully peptonised or pancreatised food.

The baby was weighed twice weekly, and the actual caloric value of the food given, compared with its theoretical caloric value, was worked out each week. The temperature, pulse-rate, and respiration-rate, the number and consistence of the stools, and vomiting (if present) were recorded daily, and a note made of the amount of fat that was being given in the 24 hours. The careful records kept have made this analysis possible. The nursing was excellent, the handling and hygienic management of the babies were beyond criticism, and the enthusiasm and devotion of the nursing staff deserve the highest praise.

Principles of Treatment.

The general principles of the treatment are: (1) The percentages of the elements in the feed must be known, and such percentages must approximate to those of human milk; (2) the actual caloric value of the feed should approximate to the theoretical caloric requirements of the baby, although in marasmic babies the actual caloric value may be raised up to half as much again as the theoretical. The percentages in cow's milk were brought to those of human milk by dilution with water, the addition of fat in the form of cod-liver oil, and milk sugar or dextri-maltose. The actual and theoretical caloric values were worked out by means of a series of special tables.

Analysis of 39 Cases.

Uninterrupted recovery	3
Did well but fat had to be omitted or reduced	6
Broke down on fat once	10
,, ,, twice	6
,, ,, three times	3
Might have done better under other treatment	6
Died	5

CLINICAL RECORDS.

1. *Cases that made an Uninterrupted Recovery.*

No. 22.—M., aged 2 months. Admitted for losing weight. Put on to Cow and Gate (modified), graded to H.M. III. Fat increased from 1/12 oz. on 5th day to 7/12 on 30th day. Gain in weight, 9¼ oz. in 31 days.

No. 30.—M., aged 7 months. A very bad home; admitted for wasting. On H.M. III. Fat increased from 1/12 to ½ oz. on discharge. Gain in weight, 13¾ oz. in 21 days.

2. *Cases that did Well but Fat had to be Omitted or Reduced.*

No. 6.—M., aged 5 months. At first put on to Ideal, then pancreatised H.M. III., and later H.M. III. and barley-water. Admitted for wasting. Had diarrhœa and vomiting from 18th–22nd day and fat reduced. Otherwise he made continuous progress. Fat was raised from 1·4 per cent. to 2·6 per cent. and reduced to 1·4 per cent. on 19th day. It was raised to 3·4 per cent. by 54th day. Gain in weight, 5 lb. 7 oz. in 170 days.

No. 42.—M., aged 3 months. Fat introduced on 4th day and increased till 18th. Breakdown occurred from 11th–18th day. Breast milk had to be given from 13th to 17th day owing to loss in weight, relaxed stools and slight vomiting. Great improvement noted subsequently when food increased,

thereby raising caloric value and percentage of protein. Gain in weight, 1 lb. 4½ oz. in 55 days.

No. 29.—F., aged 3½ months. Fat introduced 1st day. Partial breakdown 7th–37th day. Stools were frequent, greenish, and relaxed till fat reduced from 1 oz. to ⅝ and again to ½ and a higher percentage of milk given in the mixture, thus increasing the percentage of protein. Gain in weight satisfactory throughout, 1 lb. 9¾ oz. in 53 days.

No. 43.—F., aged 5 months. Fat introduced 8th day and increased every few days till 33rd day. Breakdown occurred 29th–37th day. Fat taken out 34th day, reintroduced on 40th day. Admitted for vomiting and put on to diluted feeds. Fat undoubtedly increased too rapidly. Gain in weight, 8¾ oz. in 47 days.

3. *Cases that Broke Down on Fat Once.*

No. 13.—M., aged 4½ months. Stools normal on admission; fat introduced on 5th day and increased rapidly up to ¾ oz., although weight satisfactorily increasing, and an indication noted in stools that breakdown might occur. Fat was not omitted till six days after the stools became bad. After 29th day fat reintroduced but stools became relaxed again and vomiting occurred occasionally. On 52nd day food was increased and again on 75th day and fat was borne well. Improvement noted after the baby was 6 months old. Gain in weight, 3 lb. 15½ oz. in 108 days. If fat had been introduced more slowly, probably no breakdown would have occurred.

No. 34.—M., aged 3½ months. Fat introduced 4th day and increased on 7th. Breakdown 5th–16th day. Fat taken out 15th day, reintroduced on the 29th and increased every few days till 64th day. Stools normal on admission. After the breakdown stools did not become normal and occasional vomiting occurred, although weight improved. Later satisfactory progress was made till 60th day, when fat increased to 1 oz. (although 5½ oz. gain in weight since last weighing) and vomiting recurred. A further increase to 1 1/12 oz. caused three large vomits. Till discharge there was a tendency to vomiting and food was left. This is a case where more fat was introduced, although weight was already on the increase. Gain in weight, 2 lb. 9½ oz. in 89 days.

No. 41.—F., aged 5 months. Fat introduced 1st day. Breakdown 1st–9th day. Fat taken out 3rd day, but reintroduced on 15th and increased every few days till 57th. Stools frequent with curds till 6th day, then less frequent but curdy till 9th day, when food increased; 16th day food increased again. On 25th day grading to cow's milk from Ideal started and by 48th day cow's milk entirely substituted and food increased. Owing to increase in fat taking place on 56th and on 57th day, stools became relaxed and fat was reduced on 60th day. On the whole this baby stood fat well, but was 6 months of age after 37th day. The gain in weight was 8½ oz. in 63 days.

No. 40.—F., aged 6 weeks. Fat introduced 9th day and increased on 13th. Stools unsatisfactory till 28th day. Fat not taken out till 17th day. Reintroduced 33rd day. Although stool relaxed and curdy with mucus from admission till 9th day, fat was introduced. Breakdown continued a considerable time after fat taken out and was only cured by partial breast-milk feeding on 28th day, which was continued till 32nd day. After this baby improved rapidly. This case shows the value of even small doses of breast milk. Gain in weight, 13¼ oz. in 45 days.

No. 14.—F., aged 4½ months. Fat introduced on 6th day and increased daily till 13th. Breakdown 12th–24th day. Fat taken out 15th day. Reintroduced 26th day and increased till 47th. Stools unsatisfactory from 33rd to 54th day, so no further increase made till 60th day. Stools normal or constipated till fat introduced; after breakdown not satisfactory till fat out. Stools relaxed and curdy again after reintroduction of fat till baby 6 months. Food pancreatised, then fat stood well. This baby broke down when protein percentages and actual-caloric values were low. Gain in weight, 2 lb. ¼ oz. in 103 days.

No. 24.—F., aged 11 weeks. Fat introduced 4th day and increased every few days till 27th. Days of breakdown 5th–11th, and again 33rd–45th. Fat not taken out till 43rd day. Normal stools on admission. After the first breakdown stools righted themselves when food increased. Ideal milk was graded to cow's milk on 19th day and the amount increased 33rd day. Fat was increased although baby was putting on weight rapidly, having gained 13¾ oz. in nine days (19th day to 28th). An increase in the amount of food was ordered on 33rd day although the stools had been relaxed and greenish on 31st day. A large vomit occurred on 38th day and breakdown followed. Recovery was rapid after fat stopped and the milk was boiled. On reintroduction of fat vomiting recurred and fat was not being taken well when discharged on 54th day. Gain in weight, 2 lb. 2 oz. in 54 days.

4. *Cases that Broke Down on Fat Twice.*

No. 25.—F., aged 10 days. 1. Fat introduced 8th day, increased on 10th. Breakdown 9th–15th. Fat taken out 11th day. 2. Fat reintroduced 19th day. Breakdown 22nd–35th day. Fat taken out 35th day. Fat reintroduced 40th day. Increased on 42nd, but baby discharged on 47th day. Twin. Admitted with curds in stool and mucus occasionally. Milk mixture changed to milk and whey mixture on 6th day. Milk then peptonised. After second increase of fat seven stools passed and food was changed to Ideal and fat taken out on 11th day. Breast milk introduced on 13th day. By 16th day stools lessened and improved. From 20th–24th day some vomiting occurred and stools became curdy again on 22nd day. After fat taken out the second time, stools normal for five days (to 41st day), but from 42nd to 51st day stools relaxed with curds and on 45th and 46th day the baby had large projectile curdy vomits. Probably had baby remained in, fat would have had to be omitted again. Gain in weight, 1 lb. in 47 days.

No. 31.—M., aged 3½ months. 1. Fat introduced 4th day and increased on 6th. Breakdown 5th–17th day. Fat taken out 13th day. 2. Fat reintroduced 19th day and increased every few days to 44th day. Breakdown 48th day. Fat taken out 48th day. After-effect of ol. ric. stools became normal by 4th day. In spite of gain of 7¼ oz. fat was introduced. After first breakdown stools continued normal till fat reached 1 1/12 oz. in 24 hours on 44th day. On 48th day vomiting started and an acute attack of diarrhœa and sickness supervened. Fat was taken out again and other methods adopted with satisfactory results. On day of discharge (56th day) 1/12th fat again introduced and he was discharged on this amount. In this case the rapid increase in fat led to trouble. Gain in weight, 1 lb. 3 oz. in 56 days.

No. 45.—M., aged 6 months. 1. Fat introduced 5th day and increased up to 14th day. Breakdown 15th–20th day. Fat taken out 17th day. 2. Fat reintroduced 27th day and increased up to 51st day. Breakdown 53rd–63rd day. Reduced 59th day. Marasmic baby. Stools normal on admission and remained so for 14 days. From 15th to 18th day baby had attack of diarrhœa and vomiting, necessitating the introduction of breast milk. Stools became normal again. After five days on breast milk, Benger's given with satisfactory result, but from 38th–90th day no increase in milk given and caloric value only increased by introduction of fat. Gain in weight, 15½ oz. (slightly over 2 oz. per week) to 57th day. The increase in fat on 51st day started a breakdown on 53rd day lasting till 63rd day. On 88th day the baby was transferred to Toddlers' Ward. He made great progress after this. Gain in weight, 1 lb. 2¾ oz. in 82 days.

No. 49.—F., aged 5½ months. 1. Fat introduced 1st day. Breakdown 4th–32nd day. Fat reduced 11th day, taken out 18th day. 2. Fat reintroduced 36th day and increased up to 63rd day. Breakdown 64th–72nd day. Fat taken out 68th day. Admitted for wasting, reported constipated. Stools normal three days and then became curdy, relaxed, and mucus passed. Diarrhœa and vomiting from 14th to 18th day. Stools bad till 32nd day and vomiting recurred on 36th day when fat was introduced again. Stools became unsatisfactory and some vomiting occurred. Gain in weight, 1 oz. in 25 days. Food was increased by 5 oz. in the 24 hours on 61st day and fat increased on 63rd day, with result that a breakdown occurred necessitating introduction of breast milk for two days and fat was taken out. Fat in another form was introduced on 77th day with satisfactory results. Gain in weight, 8¼ oz. in 88 days.

5. *Cases that Broke Down on Fat Three Times.*

Nos. 19 and 20.—F., aged 3 weeks. (1) Fat introduced 5th day and increased on 8th. Stools curdy with mucus from the start to 7th day, then improved, but became bad again after increase in fat. Fat taken out 9th day. (2) Fat reintroduced 11th day and increased on 26th and 32nd day. Stools unsatisfactory and vomiting started on 31st day. Fat was taken out on the 40th day. (3) Fat reintroduced on the 41st day and increased on the 42nd and 45th day. A bad breakdown occurred from the 44th to 51st day and fat was taken out again on the 48th day. Fat was reintroduced again on the 53rd day and increased till discharge on the 61st day, when the stools were normal but there was some vomiting. Gain in weight, 11 oz. in 61 days.

No. 33.—F., aged 2½ months. This was a normal baby admitted for sudden weaning. Stools normal on admission and continued so for nine days. (1) Fat introduced 4th day and increased on the 6th. Breakdown 10th to 19th day. Fat taken out on the 12th day. (2) Fat reintroduced on the 24th day and increased up to the 39th day. Breakdown 40th–51st day. Fat taken out on the 42nd day. (3) Reintroduced on the 44th day and taken out again on the 52nd day. In spite of watery and relaxed stools fat was reintroduced again on the 62nd day and increased every few days up to the 82nd day. Diarrhœa with "curds" and mucus supervened on the 86th day and fat had to be taken out again. Breast milk was resorted to from the 95th to 108th day, and the stools became normal again. This baby had cow's milk and water, Ideal and partial whey feeding, but there appeared to be no difference in the stools as long as fat was introduced. Gain in weight, 1 lb. ¾ oz. in 115 days.

6. *Cases that Might have Done Better under other Treatment.*

No. 26.—F., aged 10 days; weight 3 lb. 14¼ oz. Stools unsatisfactory from admission. Relaxed, frequent, curdy stools with mucus till breast milk given 17th day; very little difference with or without fat. This baby had breast milk on and off from 17th to 36th day, after which stools improved and Ideal milk was given. The food requirements of this baby were never met except with breast milk. Gain in weight, 9¼ oz. in 48 days.

No. 48.—F., aged 2 months; weight 6 lb. 15¼ oz. Stools normal on admission. Fat introduced on 4th day and taken out on 6th. Fat reintroduced on 12th day and increased up to 23rd day. A serious breakdown occurred starting with vomiting on the 17th day and the baby was put on to breast milk with some improvement. With the increase of fat, however, the baby became very ill and fat was taken out on the 27th day. From the 28th to the 49th day the baby became rapidly worse and was apparently dying. Weight was 5 lb. 15¾ oz. on 51st day, when I abandoned these methods altogether and gave a food with a higher percentage of sugar. Her condition improved, and later on breast milk was added which later was changed to a milk and whey mixture and again to milk and water with a different fat. Weight, 8 lb. 8¼ oz. on discharge on the 144th day.

No. 56.—F., aged 3 months; weight, 8 lb. 2 oz. This child had fat intolerance from the start. Three attempts made to introduce fat failed. Breast milk was given for two periods, but the baby had lost 1 lb. 9¼ oz. by the 67th day. In consequence of the baby's inability to take fat the food requirements were never met till Benger's food was added. Practically all gain in weight occurred after this.

7. *Cases that Died.*

No. 36.—M., aged 2¼ months; weight 8 lb. 14 oz. Admitted for dieting. Four out of six previous children dead. The two living were brought up on Nestlés. Stools bad from the first and vomiting supervened on 22nd day. This was a case where fat could not be introduced and no other attempt was made to raise the caloric value of food. After 17th day breast milk was added. Baby died 54th day.

No. 44.—F., aged 3¾ months; weight 8 lb. 8 oz. Admitted for dieting. Stools normal (except on 2nd day) till 9th day. Fat introduced 3rd day and increased twice. After increase in fat on 8th day three vomits occurred, and on 11th day diarrhœa and vomiting supervened. Temp. rose. After fat was taken out stools became normal for a few days and weight increased. Food was increased on 23rd day and stools became relaxed again with vomiting on 26th and 27th days. In spite of this, fat was introduced again on 28th day. Temp. went up again and diarrhœa and vomiting followed. Baby collapsed and died on 38th day. This case shows that the introduction of fat is not without risk.

No. 53.—M., aged 3¼ months; weight, 9 lb. 10¾ oz. Admitted for vomiting and diarrhœa. Frequent vomiting after admission for three days relieved with bismuth. Normal stools and no sickness on sixth day, weight increasing. Fat introduced 7th day. Vomiting (six vomits) started again after introduction of fat on 9th day, and in spite of this fat increased on 11th day. Diarrhœa started and vomiting increased; weight dropped and stools did not improve and baby became collapsed. After breast milk, stools improved and vomiting ceased by 27th day, but baby died on 34th day. Another case showing the risk of fat in a baby with digestive disturbance.

Criticisms.

(1) *On the Percentages Taken as Representative of Cow's and Human Milk.*—The feeds are based on the assumption that the average composition of human and cow's milk are as follows:—

—	Proteins.	Fats.	Sugar.
Human	1·5–1·25 %	3·75–3·5 %	7–6·5 %
Cow's	3·3 %	3·5 %	5 %

A series of analyses of the certified Grade A milk used in preparing the feeds gave an average as follows: fat, 4·3; protein, 3·5; lactose, 4·9. In some samples there was a difference of over 1 per cent. in fat, a difference which alters the whole of the calculations on which the feeds are prepared.

The percentages of human milk given in text-books approximate closely to the figures given above, but they are taken in most cases from nursing mothers in countries other than our own. I have seen a good many analyses of human milk from British nursing mothers, though perhaps hardly sufficient to form a working basis, but the percentages were very different from those given above, especially as regards the protein.

(2) *On the Method of Introducing and Increasing Fat, even when the Baby Shows Fat-Intolerance.*—Of the 39 cases, 25 broke down on fat: 16 once, 6 twice, 3 three times, and of those that died 3 out of 5 had diarrhœa or vomiting or both after the introduction of fat, and 3 out of 5 had normal stools before the introduction of fat.

The first question that will naturally be asked is whether the breakdown could not be attributed to causes other than the fat. What proof is there that the fat is responsible in all these 25 cases? The answer is that invariably one or more of three conditions was found—sometimes all—viz., (1) The stools were normal, there was no vomiting, food was taken well, and in some cases weight increased before the introduction of fat, and in the majority of cases no other alteration in diet was made at the time the fat was introduced. (2) The stools lessened in number and improved in consistence and colour when fat was taken out. (3) The same conditions recurred with each fresh introduction of fat or increase in fat. In a few cases the breakdown did not occur till some considerable time after the fat had been put in and increased, but in these cases also the removal of fat effected the cure.

Intolerance of fat is recognised by the advocates of this system, but they argue that if fat be persevered in long enough or a sufficient number of attempts are made to introduce it the baby will stand it in the end. Personally, I think the risk is too great, without a more careful consideration of the baby's symptoms and the weight chart, inasmuch as in a few cases the symptoms produced by the introduction of fat were not relieved when the fat was taken out, and the results show that it is easier to start an intolerance than to effect a cure. The removal of the cause does not always stop a gastro-enteritis.

Again, the fat appears to be introduced or increased without any consideration of the baby's symptoms. It is done because it is part of the system in order to bring the percentages of the elements to the standard of human milk (where the fat is about 3·5 per cent.) and to raise the actual caloric value of the food to that of the baby's theoretical requirements. Four-hourly feeding and no night feeds are the ideals aimed at. Without fat the quantity of "humanised" milk the baby can take for its age at these intervals does not give sufficient calories and the baby is on a "starvation diet" till fat is introduced and increased. For this reason as soon as the baby has settled down to its environment fat is introduced whether the baby is gaining satisfactorily without it or not, and the records do not show that the baby is invariably weighed before any increase is made in fat or food to see that such increase is desirable. It is again increased after a few days, although a warning may be given in the form of relaxed stools or curdy returns that the fat may not be suiting the baby. In a good many cases small amounts of fat were stood well, and probably larger amounts would have been tolerated and a breakdown avoided altogether had a longer interval elapsed between each fresh introduction. It seems particularly foolish to start fat in a baby sent in for vomiting, or in one with curdy relaxed stools, even when these symptoms are temporarily in abeyance. In many cases fat was borne well in babies over 6 months of age, and there seemed to be more difficulty when the protein percentage was low or when the caloric value of the foods was considerably below the baby's theoretical requirements.

Undoubtedly, too, fat was borne better when the food was pancreatised and the change to this at about 6 months of age often brought about a great improvement in the baby and gain in weight, but this tolerance may have been due to the child's age. After the breakdown was over and the condition of the baby as before (except possibly for loss of weight), the amount of fat reintroduced was the smallest amount the baby had started with. This is sound

treatment, but it was disheartening to find that the whole of our previous efforts in working up the fat had been felled at one blow, particularly when after the fat had been raised to 1 1/12 oz. the baby left hospital on 1/12, or 1/6 oz. only.

(3) *On the General Principles of the System.*—The same adherence to feeding by figures and the lack of scientific appreciation of the child's symptoms are noticed in the fact that an increase in the protein and sugar was never made beyond the human percentages although the baby was obviously crying out for one or the other of them. Nor was the food increased beyond a certain amount, nor the percentage of milk to water raised beyond a 1 : 1 mixture, although the baby was hungry, constipated, and not gaining in weight. When the percentages of protein and sugar had reached the limit prescribed and the actual caloric value of the food was half as much again as the theoretical, the only thing to raise the food in value was the introduction of fat, and if there was intolerance for this it meant that the baby must suffer from slow starvation. I fail to see why, if it is allowable to diverge from the percentages in fat, it is considered an infringement of their principles to do so in respect of sugar or protein.

No difference in the methods appeared to be made in hot or cold weather; the theoretical caloric requirements were considered to be the same summer or winter, nor was any allowance made for an energetic baby who naturally required a food of a higher caloric value than a lethargic one. Further, normal and abnormal babies are treated on the same principles. I think the failure to recognise that the abnormal baby cannot respond to the same line of treatment as the normal one is serious, particularly with regard to its intolerance for fat. Far more so is the attitude taken by some (possibly over-zealous) advocates of these methods, that all cases must be treated on these lines and no other. To use their own words: "They would die sooner under any other treatment."

Deductions.

1. An abnormal baby has a great intolerance for fat. This is no new doctrine.
2. It is impossible to feed all abnormal babies on a percentage system if the percentages followed are those at present given for human milk.
3. It is unwise to risk the introduction or increase of fat in the food of an abnormal baby unless there has been no digestive disturbance for some considerable time, and not then if the weight curve is rising satisfactorily without it.
4. The caloric value of the food required by a marasmic baby is probably more than half as much again as its theoretical value, or, to put it another way, the same standard of feeding by caloric values cannot be applied when a baby is exceedingly below its average weight for its age, even when half as much again is allowed.
5. It has not been proved that the so-called Truby King methods of percentage feeding is the best and only substitute for breast milk. This is evidenced as follows: (*a*) That in many of the cases sent out in good health, resort had to be had to breast milk to put them on the right road. (*b*) That gain in weight and general improvement which was first obtained was lost through breakdowns during the course of the treatment, and the total gain in weight was less than would have been otherwise obtained. (*c*) That some babies actually suffered in consequence of the treatment.
6. The difficulty of ascertaining a baby's power of absorption. This is a vital point, for it may be found that a baby fed on an artificial food, as cow's milk, needs to be given a higher percentage of some of the food elements because in this form he can assimilate only a certain proportion of the whole, rejecting a great deal which is passed in the stools; whereas in the form the elements are presented in human milk, although in lower percentages, practically the whole may be assimilated.

A CASE OF CEREBRAL ABSCESS COMPLICATING ABSCESS OF LUNG:

OPERATION AND RECOVERY.

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DISTANT foci of suppuration in any part of the body may occasionally be complicated by cerebral abscess; and it has long been recognised that suppuration in the lung or pleural cavity is especially prone to be so complicated. As early as 1815 Richard Powell[1] records a case of empyema accompanied by an abscess beneath the corpus callosum, though he did not appear to relate the two conditions. Admittedly the complication is rare, yet the total number of cases recorded is not inconsiderable. Thus Schorstein[2] in 3700 autopsies at Brompton Hospital finds abscess in conjunction with disease of lung or pleura to be the cause of death in 17 cases, and further he finds such abscesses the cause of death in two cases in 10,000 autopsies at the London Hospital. In addition to these 19 cases, of which he gives details, he analyses 50 others taken from literature. His paper appears to include all cases recorded at the time of its publication in 1909. Claytor,[3] after recording a case of his own, analyses a series of 58 cases which are on record, some of them having previously been summarised by Schorstein. From both papers it would appear that bronchiectasis occupies an outstanding position as the primary lesion; Schorstein states it is so in 38 of his 69 cases, empyema being second with 15 cases, the 16 remaining cases being due to gangrene or abscess of lung, tubercle, acute pneumonia, or fœtid bronchitis.

Localisation and Distribution.

The abscesses are nearly always in the hemisphere, and often near the cortex, but have been found in cerebellum, medulla, or pons. Schorstein points out that in his collected cases the left side of the brain is affected more than twice as frequently as the right; and if the cases of multiple abscesses are excluded and the single abscesses alone considered the predominance of left-sided abscesses is more than 3 to 1. Whilst admitting the pathological obscurity surrounding the association of brain abscess with lung disease (where no other abscess is found in the body) he considers that this predominance of the left-sided abscess is in favour of the embolic origin of the infection, and compares it to a like preponderance of left-sided brain infarcts in valvular disease of the heart. The occasional occurrence of epileptiform convulsions on irrigating the pleura in cases of empyema, as noted by Finlay[4] and Caley,[5] is certainly suggestive of this embolic origin, though in no case has the embolus been actually found, although death may occur within a short time of the onset of the convulsions.

The abscesses are sometimes single, sometimes multiple. Metastatic brain abscesses in general appear to be more commonly multiple—according to Gowers[6] they are so in 61 per cent. of cases—but in the group of pulmonary cases the single abscesses appear to predominate. Of 51 of Schorstein's cases in which accurate information was available 62 per cent. were single and 37 per cent. multiple.

Symptoms and Clinical Course.

The clinical course and symptoms of cerebral abscess arising in association with pulmonary disease do not differ essentially from cerebral abscess arising from local causes such as traumatic and otitic cases, if we remember that the latter are generally single and the pulmonary cases often multiple. Also the subnormal temperature and slow pulse may be masked by the primary lesion. Signs of rapidly increasing intracranial tension with slow cerebration and great dulling of the mind are most characteristic in many cases, together with localising fits or paresis appropriate to the area involved.

The progress of the abscess is usually rapid, and not a few rupture into the ventricle or on to the surface. In the group recorded by Schorstein death occurred on an average ten days after the onset of the cerebral symptoms, and the duration varied between three and 28 days. Some of the abscesses are encapsuled, most are not; the encapsuled abscesses are probably of some weeks' duration at least, judging by the records of encapsulation of traumatic cerebral abscess in which the date of onset is accurately known. Such encapsuled abscesses may be entirely latent; this, however, is probably rare, and in the majority of cases the course is an acute one.

Treatment.

The only treatment offering the possibility of cure is drainage of the abscess. This has been carried out in a few cases, but I can find no record of a recovery previous to the case given below. In a case of Barnard's the patient lived seven days after evacuation of the abscess. The debilitated condition of the patient, the difficulties of localisation, which are undoubtedly greater than in the case of traumatic or otitic abscess, the multiplicity of the lesion in more than one-third of the cases, and the acute course of the abscess are all against a successful result. At the same time, when the post-mortem findings in a number of these cases are studied, one cannot help feeling that some might have been cured had they been operated on. Such intervention must, in view of the rapid course these cases run, be carried out at the earliest possible moment after the onset of the localising symptoms.

Clinical Record.

A. S., male, aged 48, was admitted to the General Hospital, Birmingham, August, 1923. He stated that on two occasions during the last fortnight he had had attacks of seeing double when at work, and recently had frequently run into people and objects approaching him on the left side. In May, 1918, he had a severe attack of pneumonia and was ill on and off till October of that year; he was treated at home at first but admitted to hospital in July, 1918, with a diagnosis of lung abscess. The diagnosis was not established, however, and he was sent to a convalescent home for a time. He returned to work, but after a short time he contracted influenza in November, 1918, and was again ill for a month. He once more returned to work, but was very weak and ill for the next six months, coughing up a large quantity of offensive sputum daily and suffering from sweats with much loss of weight.

In July, 1919, he was again admitted to hospital with cough, emaciation, and offensive sputum, and in addition he had abdominal distension with vomiting and tenderness in the lower abdomen. Phthisis with tuberculous peritonitis was suspected. No T.B. could be found, and the von Pirquet test was negative. He gradually improved and left hospital. A month later he entered a neighbouring hospital, being then very wasted and anæmic, and complaining of pain in the right chest and right abdomen. His fingers were clubbed, and breath sounds and expansion of the right lower chest were diminished. The sputum was offensive, and varied from 4 to 14 oz. daily. The right lower pleura was explored, but nothing but adhesions found. Shortly after this he had severe abdominal pain with rigidity and vomiting and a temperature of 103° F.; these symptoms abated and he gradually improved. Some months after leaving hospital he returned to work, but continued in indifferent health till seen in 1923. During these three and a half years he expectorated a considerable quantity of offensive sputum daily, stating that he "vomited" it up painlessly two or three times a day. The daily amount was tending to diminish recently. His reason for again seeking advice was the onset of the ocular symptoms a fortnight previously.

Condition on Admission.—He was sallow and anæmic, his sputum was dark reddish-brown and most offensive, and averaged 10 oz. per diem. Elastic fibres were stated to have been found in it on one occasion, but this was not confirmed. The movements of the right lower chest were restricted and the infrascapular area was dull and silent. X rays showed a high immobile right diaphragm, the costophrenic sulcus being clear; the lower lobe was mottled, but there was no evidence of cavitation or abscess. There was weakness of the left hand and arm with a left extensor plantar reflex. Examination of the eyes showed the fundi to be normal with good visual acuity in each eye; left homonymous hemianopsia, with preservation of the macula on each side.

A single lesion in the right occipital lobe would account for the cerebral symptoms, and it appeared probable that it was secondary to the thoracic condition. With regard to the nature of this latter there was some doubt. The X ray picture was considered to point rather to bronchiectasis than to lung abscess, but the physical examination of the chest showed nothing distinctive of either condition. The expectoration of a large quantity of offensive sputum had, however, been present from almost the earliest days of his illness, and this had evidently been considered suggestive of lung abscess, which was the diagnosis on his first admission to hospital two months after the onset of the initial pneumonia. The possibility of a subdiaphragmatic abscess pointing through the diaphragm was considered in view of the history of peritonitic symptoms.

It was decided to operate on the thorax first, in view of the quiescence of the brain condition.

Thoracotomy (August 8th, 1923).—Through an oblique incision across the right infrascapular region 5 inches of the ninth and tenth ribs were removed just external to their angles. The two pleural layers were united by adhesions, and no empyema could be found. The lung was incised freely and a finger introduced in all directions. No cavity was tapped. The lung was œdematous, almost airless, and firmer than normal; a large tube was stitched into one of the tracks passing into the lung substance. The operation was done under gas and oxygen, and the patient was very bad during the short time he was anæsthetised, only being saved from flooding his other lung with the pus he was coughing up by being placed with his head much lower than his body.

Three days after operation the discharge from the lung wound became excessive and very offensive; coincident with this his sputum became less offensive and much diminished in amount. A month later his lung wound was granulating and the sputum consisted of about ½ oz. of inoffensive mucus daily. By this time, however, his cerebral symptoms were much worse. Patient was dull, incontinent, with a low blood pressure and a furred tongue. The temperature was subnormal, pulse about 90, and he had lost weight considerably. The left hemiplegia was more pronounced, and he now had in addition a right extensor plantar reflex. The retinal veins were full but no neuritis was present. His condition was obviously desperate, but it was decided to try and tap the abscess. The patient was trephined below and behind the right parietal eminence. On enlarging the opening the dura was found to be tense, and was incised. On introducing a forceps inwards, forwards, and downwards pus was obtained at about two inches from the surface—about three ounces were evacuated and it smelt of *B. coli*. A tube was introduced through the centre of the flap and the latter replaced, with rubber drains beneath it radiating from the centre drain.

Great improvement in the patient's condition was noticeable in a few hours, and by the next day he was bright, intelligent, and was using his left arm, hand, and leg freely. The pus grew streptococci, staphylococci, and a coliform bacillus. Convalescence was uneventful, but the drainage-tube was not finally removed for a month, by which time the abscess cavity was obliterated and the tube track rapidly healed after the removal of the tube.

On examination of the eyes (Oct. 19th) the fundi were normal, there was a partial left homonymous hemianopsia, the upper part of the field recovering. Visual acuity, left 6/12, right 6/6. The lung wound by this time was healed and the patient's general condition was excellent. He still coughed up a few ounces of non-offensive frothy sputum each day.

Seen some months later the patient had a depressed area at the site of the cranial operation; the right lower chest posteriorly showed restricted movement and air-entry, a little frothy sputum was expectorated, and he was at work in better health than he had been for years.

Commentary.

The question of diagnosis of the exact condition in the lung was not definitely settled; it was almost certainly either a bronchiectasis or a chronic abscess, and the X ray picture was more suggestive of the former condition. The sudden increase of discharge the third day after thoracotomy with cessation of expectoration suggests, however, that a chronic abscess cavity unreached at operation suddenly established communication with the wound. Drainage of a bronchiectatic cavity or series of cavities would be extremely likely to give rise to a bronchial fistula—however, the lung wound healed without undue delay. No cavities were met with in the hurried exploration. Undoubtedly the thoracotomy should have been done under local anæsthesia—the general anæsthesia caused the patient grave risk of death by flooding with the large quantity of sputum coughed up—only the placing

of the patient in the head-down position prevented the swamping of the opposite lung. Attempts to empty the cavity beforehand had not been as successful as was anticipated.

Reviewing the whole case, it would probably have been wiser to have operated on the cerebral abscess before the lung condition, as by the time the patient had recovered from the thoracotomy he was almost in extremis from the intracranial pressure of the abscess. It was thought better at the time to deal with the causative condition first as the brain lesion then appeared quiescent. I was not aware at the time that the majority of such cases run a very rapid course, and although in the published records some of the abscesses must have been of some weeks' standing at least as they were encapsuled, yet Schorstein states that the average length of life from the onset of the cerebral symptoms was only ten days and varied from three to 28 days. The only reasonable hope, therefore, of successful surgical interference is to deal with the cerebral complication first.

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ABNORMALLY LOW PULSE PRESSURES IN CASES OF NEUROSIS.

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THE normal limits of the pulse pressure may be taken to lie between 40 and 55 mm. of mercury. Increase of this pressure is found in several conditions. In senile arterial change the systolic pressure is raised, and the diastolic is lowered, with the result that the pulse pressure is increased. In hypertension, whether renal or not, the pulse pressure is nearly always increased in proportion to the height of the systolic, while in an uncomplicated aortic insufficiency the increase is striking, chiefly owing to the lowness of the diastolic, though elevation of the systolic often contributes. As Harris [1] has noted, increase of this pressure occurs also in Graves's disease associated with tachycardia; but any temporary emotion, such as that caused by examination, may in nervous subjects cause an increase in the pulse pressure by raising the systolic.

Decrease in the pulse pressure is not so common. It occurs in tachycardia, especially paroxysmal, in advanced mitral stenosis, and conditions of circulatory failure. No evidence has yet been forthcoming as to its presence in any other group of cases with normal pulse-rates.

Observations on 2000 General Cases.

Out of 2000 general cases in which the blood pressure has been taken by the auscultatory method on an average of four times each, 230 were found to present pulse pressures of 30 or under on one or more occasions. Cases which showed pulse pressures of between 30 and 40 were rejected as being doubtful. In very few cases was the pulse-rate over 100, nor were any cases of advanced mitral stenosis or of heart failure included. The blood pressure was taken in the sitting posture with the patient's arm resting on the desk.

[1] Harris, I.: Brit. Med. Jour., 1923, i. 630.

Systolic Pressure in Mm. Mercury.

P.P.	85	90	95	100	105	110	115	120	125	130	135	140	N.C.
30		2	1	3	5	21	1	21		10		3	67
27		2		7	12	9	2	5	1	2	1	2	43
25	1		2	14	16	8		6	8	1	1		57
22	1	1	2	6		2	1	4	1	1			19
20		1		8	2	6	1	9	1	1		1	30
17			3	1	1	1	1	1					8
15		1		3		2							6
	2	7	8	42	36	49	6	46	11	15	2	6	230

P.P. = Pulse pressures. N.C. = Numbers of cases.

Systolic and pulse pressures are shown. Diastolic pressures can be obtained by subtracting the pulse pressure from the systolic pressure.

From the chart it can be seen that the total range of the systolic pressures was from 85 to 140, but by far the greater number lay between 100 and 115. Where one case had several pulse pressures under 30 the lowest was taken. The ages of the patients ranged from 25 to 70, the majority being between 35 and 50.

These cases were grouped as follows:—

1. Neurasthenic, numbering 93. This group consisted of neurasthenics of all sorts, from constitutional neurasthenics to cases where dental sepsis or astigmatism contributed to the exhaustion of the nervous system. Apart from palpitation, usually of gastric origin, there were no cardiac symptoms.

2. Nervous, consisting of 64 cases. These cases, while not neurasthenic, were definitely neurotic, including many with marked vaso-motor disturbances. Some had few symptoms, and the neurosis might not have been suspected had the pulse pressure not been noted. One such case, a man of 26, weighing 16 st., said he was in perfect health, and merely wanted his weight reduced. The systolic pressure was 90 and the diastolic 70 (registered in this case by the Pachon). On being questioned he admitted that for the last two years he had suffered from marked depression.

3. Mucous colitis, of which there were 48 cases. Every case showing an abnormal amount of mucus in the stools was put in this group. The nervous phenomena associated with this condition are so well known that it was thought better to do so rather than divide them among the neurasthenics and neurotics.

4. Cases associated with some organic affection totalled 26. Some of these—e.g., rheumatoid arthritis cases, were suffering considerable pain. Three of them were in a state of anxiety about their condition. One man, otherwise normal, was faced with an operation for ureteric calculus. After showing three abnormal pressures he passed the stone into his bladder. Unfortunately, no further readings could be taken, as he was not examined again.

The treatment of cases of the first two groups was in general that of neurasthenia. They improved by general tonic treatment after the removal of any septic foci, the correction of errors of refraction, and the promotion of digestive efficiency. The pulse pressure, however, was a guide to the efficacy of the treatment. Constitutional neurasthenics, whose condition could only be alleviated, tended to show abnormal pulse pressures at the end of the treatment as at the beginning, while those in which it became normal invariably lost their symptoms and usually ended in recovery.

In the following examples the average interval between pulse-pressure readings was five days:—

1. Constitutional neurasthenic. M., aged 60:—

	1st.	2nd.	3rd.	4th.
Syst. ..	114	92	98	90
Diast. ..	90	70	70	65

This patient has been under observation for years. He improves under treatment, but invariably relapses under the stress of work at home.

2. Neurasthenic. F., aged 35:—

	1st.	2nd.	3rd.	4th.
Syst. ..	98	100	122	120
Diast. ..	78	80	92	80

This patient had lost 1½ st. in the previous two years. She gained 5 lb. during this period and lost all her symptoms.

3. Mucous colitis. F., aged 53:—

	1st.	2nd.	3rd.	4th.
Syst. ..	148	118	124	140
Diast. ..	100	90	100	88

The catarrh of the colon cleared up after four douches between the second and third examination, and she then made a rapid recovery.

Discussion.

Neurotic subjects are about equally divided in the matter of their pulse pressures. About half of them will always show high readings. In a few cases of obvious neurosis the pulse pressures are normal. The readings on the first examination always tend to be high through the emotional factor, and should be accepted with reserve. In some it is not until much later that the true pressure is revealed. The following is an example from an apprehensive neurasthenic in which the fourth and succeeding pressures are probably the true ones:—

F., aged 49:—

Syst. ..	138 ..	124 ..	112 ..	100 ..	105 ..	105 ..	124 .. 120
Diast. ..	88 ..	90 ..	90 ..	90 ..	90 ..	90 ..	86 .. 96

On the last occasion she said she felt quite well. There is little doubt that she will relapse at home.

The abnormally high pulse pressures have not been dealt with here, as other conditions have to be excluded before they can be accounted neurotic. No satisfactory means of differentiating between the two classes has yet been found, though the low ones seem in the main to be vagotonics. Acidity with flatulence is common, and cold extremities are not infrequent. As a physical sign a low pulse pressure has the advantage that it occurs in cases where the opposite might be expected. It is sometimes the means of revealing the presence of an otherwise obscure neurosis which the patient may be reluctant to disclose, and it is certainly a useful index of the response to treatment.

The cause of the condition must be related to a diminution in the cardiac output. This could be due either to a primary cardiac asthenia, or to defective filling of the heart. Apart from variable apical systolic murmurs, there was no evidence of any cardiac involvement. Electro-cardiograms in a few test cases showed normal curves. The quantity of blood entering the heart is determined by the effective volume in circulation. It could be influenced either by an alteration in the total volume of the blood, or by stagnation of blood in any of the venous or capillary reservoirs.

M'Dowall [2] has shown that in the cat in cases of low venous pressure near the heart following hæmorrhage, or the administration of alcohol, or the injection of histamine, section of the vagus will cause a further reduction in arterial pressure. He considers that there is a vago-pressor reflex under these conditions to prevent excessive lowering of the mean pressure. If this reflex is present in man in cases where the systolic is low, the result could be obtained by a raising of the diastolic, thus bringing about a small pulse pressure. This might particularly apply where the vagal influence was already predominating.

The vaso-motor systems of these cases are in a very unstable condition. Their pressures are liable to fluctuate largely from emotional and other causes. It is therefore unlikely that there is any alteration in the total blood volume. We would suggest that the probable explanation is to be found in some deficiency in vascular tone giving rise to inefficient circulation through the capillaries or venous radicles.

We desire to express our thanks to Prof. J. A. MacWilliam, of Aberdeen, for reading the manuscript and for helpful criticism.

[2] M'Dowall, R. J. S.: Journal of Physiology, 1924.

Summary.

1. An analysis of 2000 general cases shows that 230 presented pulse pressures of 30 mm. of mercury or under.

2. In 90 per cent. this was associated with nervous phenomena, either neurasthenia or neurosis.

3. Return of the pulse pressure to normal was found to be an indication of improvement in the general condition.

4. It is suggested that lack of vascular tone causing stagnation of blood is the most likely explanation.

ANTI-CONSUMPTIVE THERAPEUSIS.

BY R. HERVÉ, M.D.,
DIRECTOR OF THE SANATORIUM DES PINS AND OF THE STATION CLIMATIQUE DES ESCALDES.

SINCE the advent of treatment by artificial pneumothorax we are no longer helpless in the face of pulmonary tuberculosis and we are conscious of being frequently useful to our patients. Why is it, then, that this method, so fruitful in immediate and even definitive results, is yet so often disappointing? In my opinion the reason is, that, relying too much on the relief given to his patients by pneumothorax, the expert is apt to neglect the old rational therapy, which in the midst of more or less specific treatments has held its own for over 50 years—namely, hygiene and dietetics. To conclude from the often remarkable results of compression, as was frequently done, that consumptives with a pneumothorax could continue to live in town and go about their business, while neglecting the essential curative factors of rest and open air, is to disregard the whole character of the illness. At the present time, the doctrine of primary infantile infection being definitely accepted, the clinician when visited by a patient with active tuberculosis of the lungs, cannot lose sight of the fact that the affection revealed by his inspection is of long-standing origin. Long before the morbid manifestation the organism was impregnated with tuberculous poison. With or without local lesions, the subject had reacted, sometimes unawares, against the attacks of the affection. Tuberculosis of the lungs (the most frequent manifestation), tuberculosis of the glands, of the joints, or of the bones, represent merely pitched battles in an ancient war. Can we therefore expect that by temporarily suspending the functions of a lung we may, at a stroke, radically suppress all traces of tuberculosis and restore the normal physiological functions to debilitated organs? To this I can give an answer based on observations in two of my cases which were published in the *Presse Médicale* (No. 75, Sept. 19th, 1923)—cases of which I have since had numerous other examples—of tuberculosis progressing in a collapsed pocket in the lung in spite of an appearance of perfect compression. Secondary manifestations are also liable to occur after the collapsed lung has dried and healed up—namely, meningitis, bacillary nephritis, epididymitis, peritonitis, and so forth.

The fact is that the hygienic-dietetic treatment, combined with a well-ordered rest cure, is an essential and is all the more efficacious after the Forlanini application. By "hygiene" I mean the open-air treatment, which must be carried out without remission day and night. Fresh air, like a benign spectre, must accompany the patient throughout the daily routine indoors or outdoors. By "dietetics" I mean that form of treatment which, in spite of the reduced importance which we now give it, nevertheless plays an important part in establishing a cure. In prescribing it the attention and wisdom of the doctor will be daily put to the test, as much to stimulate and regularise the digestive functions of the patient as to protect him against the dangers of untimely overfeeding. A further important factor in treatment is climate, and the right choice of climate is by no

means easy for the average practitioner to decide, and yet all specialists know how, on one hand, a well-chosen climate can influence the evolution of the illness and how, on the other hand, to send a patient with congestion or hypertension to the mountains may be disastrous.

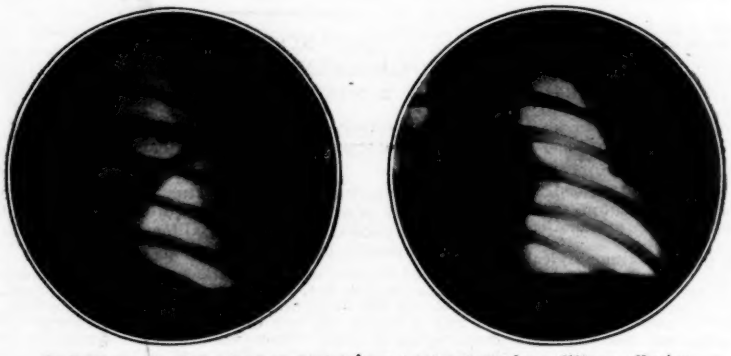
To supplement the hygienic-dietetic treatment, I would add heliotherapy, now of proved efficacy, thanks to Rollier's works, in the treatment of tuberculosis of the bones and glands, although its virtues are still questioned in the treatment of pulmonary tuberculosis, in spite of the work [1] which I have been publishing for over ten years, following Malgat in France and preceding the later studies of Oelsnitz, Bernère, Gassul, and Liebe.

Heliotherapy, if applied in due time, confirms and consolidates the results obtained by the open-air treatment. What rest and climate alone cannot always effect—namely, return of the appetite, suppression of the cough and expectoration—are obtained in a few weeks by progressively conducted heliotherapeutics under Rollier's system. The disappearance of fever under the influence of the sun cure is anything but exceptional; and I have many times witnessed, after a few sun treatments, a drop in temperature which other treatments had been powerless to bring about. Auscultation shows drying-up of the suppuration centres, and even the radiological control, after a few months' treatment, will confirm progress due to the action of the sun, and further, it is very satisfactory to note how heliotherapeutic treatment, by inducing better nutrition, restores to our patients the symmetry and contour of their bodies.

But prudence is necessary. Not everyone can go to the mountains or take the sun cure. All congestive and evolutive patients should be kept in the plains, at least for the time necessary to reduce their temperature; for the same reason it would be more judicious and less risky for pneumothorax treatment to commence in the plains. As soon as the symptoms of tuberculous activity appear to slacken, all pulmonary cases, whether with or without pneumothorax, and especially those where the pleura is chiefly affected, may be taken to higher ground in order to benefit by the heliotherapical cure all the year round.

Since 1913 I have treated all my pneumothorax cases in this manner, and, thanks to this method, I have been able to obtain remarkable and definite results with patients who, owing to the bilateral condition of their lesions, seemed to be excluded from any hope of cure. Further, and as a corollary to hygienic treatment, I would add the sulphur water cure which, in spite of the official disfavour in which it lies to-day, has still numerous successes to its credit. For long it was usual to rely on hydro-mineral treatment for the treatment of tuberculosis of the bones, and its efficacy was hardly questioned until first the marine cure, then mountain-heliotherapy came into medical favour.

Why do we not associate these various elements of treatment, when Nature offers them to us accumulated in one locality? [2] I saw at Escaldes a patient with coxalgia and multiple fistulas of long standing who was recommended for amputation whilst showing extension and activity of the suppurating foci. A localisation in the lung appeared, and if this advice had been followed the outcome would have been certainly fatal. Yet after eight months' sun and bathing treatment all the fistulas closed. The patient left the establishment on his feet and could walk two miles. Not only may tuberculosis of the bones be treated by hydrotherapy associated with heliotherapy, but this method promises good results in laryngeal tuberculosis, the prognosis of which ought to be amended as soon as our knowledge becomes a little more definite.[3]



Radiograms showing a lung prevented from total collapse by a filiform adhesion and the result of division of this adhesion.

Finally, even to patients with pulmonary tuberculosis we should not refuse the help which in certain cases may be given them by means of hydro-mineral treatment applied with precaution. Sulphurous waters, whether taken internally or externally, have given appreciable results, and we may recall the results obtained by our forbears from a cure at Eaux-Bonnes. It is only the indiscriminate recommendation of badly selected patients that has caused this treatment to fall into discredit. Is this a reason for denying the services the springs have rendered? We are taking up this matter again, and it would seem that the sclerosal forms of tuberculosis where the pleuræ are predominantly affected can be treated advantageously by our Escaldes waters, after a few weeks' climatic treatment.

To sum up, setting aside all treatment by drugs, among which the doctor, nevertheless, will often find helpful tools, I am of the opinion that at the present time all pulmonary tuberculosis cases where suppuration occurs as revealed by the ear or the screen—or even where the disease is in rapid evolution—should have recourse to Forlanini. Pulmonary compression will work wonders, provided that it be properly carried out. To achieve this purpose, and in order to make up for any possible insufficiency of compression, I inaugurated in France as early as 1913, contemporaneously with Jacobæus in Sweden, the method of dividing pleural bands.[4] I have since published a number of results confirmed by radiograms. The accompanying radiograms show a lung prevented from total collapse by a filiform adhesion and the result of division of this adhesion.

But besides such surgical measures, the simple and fundamental methods of treatment must never be overlooked—namely, rest, open air, and sunshine.

[1] Pneumothorax and Heliotherapy (contributed to the International Anti-Tuberculosis Conference, Berlin, 1913). Outline of Two New Therapeutical Methods of Pulmonary Tuberculosis, Pneumothorax and Heliotherapeutics (contributed to the Society for Scientific Study of Tuberculosis, Feb. 12th, 1914).

[2] Thermal and Heliotherapic Cures Associated in the Treatment of Tuberculosis (contributed to the Congress for Hydrologics, Bordeaux, 1922).

[3] Laryngeal Heliotherapics, Instrumentless Device (Presse Thermale et Climatique, Jan. 15th, 1922, by Legourd).

[4] Liberation by Cautery of Pleural Adhesions during Treatment by Pneumothorax (Presse Médicale, No. 41, May 24th, 1922).

Clinical and Laboratory Notes.

A CASE OF AIR-EMBOLISM OCCURRING DURING URETHROSCOPY.

BY RICHARD S. ROPER, F.R.C.S. EDIN.,
CLINICAL ASSISTANT, UROLOGICAL DEPARTMENT, KING'S COLLEGE HOSPITAL.

THE possibility of the rare accident described in the following case and its gravity warrant the facts being placed upon record:—

W. A., aged 60, was sent to the Urological Department, King's College Hospital, on Jan. 2nd, 1924, complaining of difficulty in micturition, which had been relieved by passage per urethram of a small solid substance. The patient brought with him in a test-tube some clear urine with a piece of tissue in it which on section subsequently was found to be blood-clot.

Examination of the abdomen revealed nothing abnormal. Clear urine which contained a few shreds was passed easily, though in small stream. I passed a No. 10 coudé catheter, which was held up in the region of the bulb, and although the instrument was used with care, slight bleeding started at once. The urethroscope tube was then passed and the urethra thoroughly dried. A Joly instrument was used and under air inflation a good view was obtained. The walls of the urethra in front of the bulb appeared covered with granulation tissue which no doubt was responsible for the ease with which bleeding occurred. It was also possible that the condition might be epitheliomatous. No actual stricture could be seen beyond the granulation tissue.

As I was removing the urethroscope I noticed some surgical emphysema of the penis, and at once realised that as air had entered the tissues there was a danger of air-embolism. From the appearance of the patient it was apparent that this had already taken place. From the time air was first pumped into the urethra to the time symptoms first occurred about three minutes elapsed. The patient was dazed and restless and constantly moved his head from side to side. He was gradually losing consciousness. He became cyanosed, and the breathing began to be stertorous. The respiration slowed and became sighing in character and eventually ceased. The pulse continued to beat feebly after cessation of respiration, and later could no longer be felt at the wrist. The corneal reflex was never lost. About eight minutes elapsed between the time the symptoms first occurred and the failure of both respiration and circulation. In the meantime injections of strychnine and camphor were given and oxygen sprayed over the face. When respiration ceased artificial respiration was resorted to, but was only maintained a few minutes before the patient began to move his limbs, and normal respiration was restored.

After passing through a stage of great restlessness during which his desire seemed to be to sit up he gradually regained consciousness. It was noticed that during the repeated attempts to sit up the extra exertion called for caused the pulse to become imperceptible at the wrist. He was at once admitted to hospital, recovered completely in a few hours, and was discharged in a few days. A few weeks later this patient was admitted to the hospital under the care of Sir John Thomson-Walker, who excised a simple stricture and performed end-to-end suture of the urethra. I passed a No. 16 bougie two months later with ease.

Discussion.

On looking through the literature of air-embolism following surgical interference for the last 20 years, I find that most cases seem to have occurred in connexion with operations on the lungs and air-passages. A few cases have taken place after injection of the uterus with air or fluids in procuring abortion.[1] No reference in connexion with urology is found until 1913, when three cases were reported after distension of the bladder with air before prostatectomy. All three cases were fatal.[2 3 4] The only case reported of air-embolism during urethroscopy was that by Mr. Ogier Ward in 1923, which was also fatal.[5] Mr. Swift Joly tells me that some years ago two cases of sudden death took place during urethroscopy at St. Peter's Hospital which were at the time thought to be due to urethral shock, but that these cases were most likely due to air-embolism. Air-embolism in connexion with urethroscopy is therefore a real danger and should always be borne in mind, especially in cases where the urethroscopic tube fits tightly or when there has been hæmorrhage from the urethra. It is, of course, advisable not to use the urethroscope within 14 days of instrumentation for dilatation of stricture or where hæmorrhage has taken place from the urethra after surgical interference. Even if there has been no instrumentation at all it is quite impossible to be sure that there may not be a small abrasion of the urethral mucous membrane through which air can be forced into the vessels. At the same time, rare accidents of this kind should not deter one from using a valuable instrument with due precaution.

I am indebted to Mr. J. Everidge for permission to publish this case.

References.—1. Australian Medical Gazette, April 20th, 1909; April 20th, 1910; and August, 1912 (quoted by THE LANCET). 2. Nicolich: Journal d'Urologie, iii., 45. 3. Marion: Ibid., iii., 47. 4. Santini: Bull. d. Sc. Med. di Bologna, 1913, 9 S., i., 491. 5. Ward: Proc. Roy. Soc. Med., Sect. Urol., 1923.

AN UNUSUAL CASE OF DISPLACEMENT OF ONE EYEBALL DUE TO A MYXOMA OF THE FRONTAL SINUS.

BY GEORGES KLIONSKY, M.B., B.S. LOND.,
HOUSE SURGEON, LONDON JEWISH HOSPITAL.

DISPLACEMENT of the eyeball due to disease of the frontal sinus is sufficiently uncommon in itself, but when accompanied by the unusual features of the case to be described it becomes worthy of record.

A married woman, aged 60, was admitted to the London Jewish Hospital on Oct. 9th, 1924, complaining of diplopia. The diplopia had been noticed for the last three months, but had occurred on one or two occasions during the preceding six months. There were no other symptoms in the history. The actual displacement of the eyeball was only noticed by the patient's relatives for about two weeks before admission. There was no pain in the eye, no headaches or vomiting, no nasal discharge. The right eye had been swollen three months before (? condition), but this had subsided in a few days under treatment with hot fomentations. There was a history of acute pain in both eyes 15 years ago. Operation was advised and not performed; the condition probably was some form of glaucoma. For the last three or four years the patient had been under treatment for rheumatoid arthritis.

Examination showed the left eye to be normal in every respect. The right eye was displaced forwards, downwards, and outwards, and the movements were limited upwards and inwards. There was no conjunctival injection. The fundus was quite normal. There was no pulsation of the eye, and no deformity or tenderness in the region of the orbit could be made out. Nasal examination revealed no discharge and no apparent abnormality except a slightly deflected septum. The X ray report was "Nothing very definite to account for the condition." The sinuses and antra were clear. The patient showed no pyrexia during her stay at the hospital. The Wassermann reaction of the blood was negative. The general examination revealed no primary focus of any growth.

While the case was being investigated the patient had an attack of acute glaucoma in each eye. This subsided quickly under treatment with eserine.

The provisional diagnosis one was forced to make was that there was present on the upper inner wall of the orbit a new growth of some kind, and it was decided to explore the orbit and deal with the condition found.

Operation.—An incision was made through the upper eyelid. Exploration with the tip of the finger showed a large fairly soft swelling. Nothing further could be determined as to its nature, as it was too far back; and it was not possible to deal with it through the incision made. The eyeball was therefore enucleated and the outer canthus divided. The swelling was found to be semi-fluctuant, occupying nearly half the orbit and apparently extending forwards from the apex on the roof and outer wall of the orbit. It was decided to eviscerate the orbital contents, and with this in view a beginning was made to separate the periosteum from the roof of the orbit. A considerable quantity of thin, jelly-like mucus suddenly exuded from the swelling, and the raspatory used was found to lie in a large cavity with smooth walls. This was explored and found to consist of the frontal sinus extending above the orbit back-

wards and round to the external angle. There was no floor to it, and the swelling had apparently extended through the opening and had separated the periosteum from the bone. No opening into the infundibulum could be found. The whole of the contents of the cyst was evacuated, the lid sutured in place, and a small drainage-tube inserted.

Discussion.

True myxomata are rare tumours, and connective-tissue tumours and inflammatory swellings undergoing myxomatous degeneration look very much like them macroscopically. It is unfortunate that a microscopic slide of the material could not be obtained; but a diagnosis of myxoma is favoured in preference to that of mucocele, because of the absence of inflammatory changes in the sinus and the perfect smoothness of the walls. In the case of a mucocele, thickening of the lining membrane of the sinus might have been expected at least. The absence of an opening of the sinus into the nose doubtlessly led to the increased pressure which gradually caused erosion of the bone of the floor. The former would, of course, also account for absence of nasal symptoms, even assuming that the condition was inflammatory. It might also be pertinent to ask whether a myxoma would be more likely to cause erosion of bone in contact with it than a mucocele.

I should like to express my indebtedness to Mr. A. H. Levy for permitting the publication of these notes.

A USEFUL STAIN FOR BLOOD FILMS.

BY A. KNYVETT GORDON, M.B., B.CH. CAMB.

IN the early literature of hæmatology difficulty often arises from the fact that different workers did not always use the same stain, and it is, therefore, not always easy to understand to what type of cell they were referring.

A considerable advance was made by the use of Jenner's, followed by Giemsa's stain, or, as it is commonly called, the panoptic method. This can be standardised, and is, in fact, now used by most hæmatologists. It has the advantage that the various granules characteristic of different types of cell are well brought out, which has not hitherto been possible by any other method. In the diagnosis of pernicious anæmia, for instance, the panoptic method is essential. It unfortunately necessitates the consecutive use of two stains, and if the materials of which either is composed are not accurately prepared, the stain goes wrong. The process also is somewhat lengthy and the technique not always easy. As a result of many experiments I have now found a single process stain which gives results indistinguishable from the panoptic method, and in a much shorter space of time.

The stain is based on Leishman's method, but consists of:—

Eosin-methylene-blue	0·02 g.
Eosin-methylene-violet	0·02 g.
Methyl-alcohol (pure for analysis) ..	25 c.cm.

The film is flooded with the undiluted stain for one minute. An equal part, approximately, of distilled water is then added on the slide and the diluted stain allowed to act for three minutes, followed by distilled water for approximately two minutes. The film is dried and mounted either in neutral Canada balsam, or, preferably, in green euparal, the use of which is conducive to permanence of the specimens and also improves the definition of the granules.

An additional advantage of this method is that a somewhat wide latitude is permissible both in time and dilutions.

The stain is prepared by Messrs. British Drug Houses, Ltd., to whose analyst, Mr. Tusting Cocking, F.I.C., I am indebted for the painstaking way in which he has carried out the experimental work on the technical side.

London, W.C.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

A MEETING of this section took place on Jan. 9th, Sir ARNOLD LAWSON, the President, occupying the chair.

Susceptibility of Nocturnal Animals to Ultra-Violet Light.

Prof. SIDNEY RUSS and the PRESIDENT communicated to the section results of their observations on this subject. These investigations, said Prof. Russ, were prompted by the question put during the war as to whether the night vision of naval officers and other ratings could be improved, as it was necessary that their vision in the poor light in which they worked should be as acute as possible. For the purpose of ascertaining whether this vision could be artificially assisted, it was suggested that by giving to the eye a certain fractional dose of light its sensitiveness to very dim lights might be increased. The result of the experimentation which was carried out was that if to a comparatively rested eye a small dose of light of the blue and violet region of the spectrum were applied, the eye became somewhat more sensitive in its perception of distant and dimly-lighted objects. By this means the acuity of vision could be increased about 15 per cent., a figure which was practically arrived at by others working independently. The compass charts of the first Zeppelin brought down in this country were found to be illuminated with this variety of light. The further question arose as to how transparent the eye was to light from different regions of the spectrum. In fresh specimens of human eyes available for the purpose, a small window was cut at the back of the retina and a quartz plate cemented on to that; thus for all practical purposes the eye was still there, but radiation could be transmitted through it and analysed, in order to see to what extent radiations were absorbed by the cornea, the humours of the eye, and the lens. The first experiment with the human eye showed that this organ was very absorbent of anything beyond a wave-length of about 3800. The question which arose in his mind was as to whether acuity of vision in a dim light depended upon the transparency of the eye for radiation beyond that wave-length, that is, of shorter wave-length. If so, it should show itself by a study of the same process in nocturnal animals. On eyes of animals obtained from the "Zoo" the same process was gone through, and, as depicted by spectra shown on the screen, there was found to be an extraordinary difference in the degree to which these violet and ultra-violet radiations were transmitted by the whole optical apparatus. Nocturnal animals were found to have, in general, a very marked transparency to radiation which did not seem to be transmitted through the human eye at all. There was a considerable absorption of radiations within the range of normal vision. It might not be so much a matter of the action of the retina as of that of other components of the eye. Nocturnal animals were understood to be those which hunted their prey by night, but in the case of some, such as the tiger, this hunt was partly a matter of scent. The range of radiations transmitted by the tiger's eye, though considerable, was not so great as in the eye of the night owl. Such a range of radiation entering the eye must, Prof. Russ thought, contribute very considerably to vision in a poor light, especially as shorter wave-lengths gave sharper images than did longer wave-lengths.

The PRESIDENT said the actual work in this investigation was done by Prof. Russ, and he (Sir Arnold Lawson) was little more than an interested onlooker. The experiments seemed to throw some

light on the power of nocturnal animals to achieve their purpose in light which would be quite inadequate for diurnal creatures. He considered that there were three possibilities: (1) Extra susceptibility to ultra-violet radiation might increase the consciousness of light in nocturnal animals, so that they could hunt successfully in a light which would be impossible for ourselves; (2) or there might be a greater power of image-formation, the longer visible spectrum giving a keener image; (3) the effect might be in both these directions. He did not know of any differences in the anatomy and physiology of eyes of nocturnal animals to account for their strange power, and Prof. Russ's experiments seemed to him the best basis for further research yet offered on the subject. They suggested a possible explanation of why people with apparently similar emmetropic refraction differed so widely in their power of image-formation. Some people were conscious of much shorter wave-length radiations than were others; was it therefore possible that in the eyes of people with extra keenness of vision there was an extra susceptibility to ultra-violet radiation? Could the gradations in keenness of vision be explained in this way? The problem of night-blindness was also illumined by this research, for people so afflicted might have a lack of ultra-violet appreciation.

Sir JOHN PARSONS asked whether the powers of different parts of the eyes examined were tested. Experiments done on rabbits' eyes by himself, and, later, by Fowler and by E. K. Martin, gave results which did not tally with those done by Prof. Russ, at least in regard to the human eye. One of the great difficulties in finding the absorption to various wave-lengths by the cornea, or by the lens, was that caused by the refractive effect of the tissues themselves. It was very difficult experimentally to make a window in a fresh eye such as was employed by Prof. Russ, and still get a very satisfactory exposure and a good absorption spectrum by that means. Much of the radiation was absorbed by the lens, and much was altered by the production by the lens of fluorescence. The experiment of sensitising the eye by dosing it with light of short wave-lengths was of such value as to demand extension, and he spoke of a very fine piece of work which had recently been done on the subject by Prof. Frank Allen of Winnipeg, who found that stimulation with rays from one end of the spectrum increased sensitivity to sensations derived from stimulation of the eye by other parts of the spectrum. He (Sir John Parsons) did not feel certain that if short wave-length radiations got into the eye they would increase its sensitivity and the acuity of vision. The eye possessed chromatic aberration, and the long and short wave-lengths could not both be accurately focused; usually the focusing was for some intermediate wave-length, which Hartridge found to be the yellow region of the spectrum. Monochromatic illumination was a different matter.

Prof. F. G. HOBDAY said that during the war Australian horses were used in Palestine for night-work because they did not suffer from night-blindness. He thought Prof. Russ's research could be usefully extended on eyes of recently-killed horses in the wild state, as they existed, for instance, on the Pampas.

Reply.

Prof. RUSS, in reply, said he omitted to mention that the eyes used were subsequently examined as to the absorptive power of their separate portions. It was found that the lens was the most absorbent, next came the cornea, there being but little difference between the other two humours. With regard to the marked absorption by the lens, an explanation and demonstration of this absorption was furnished by a very marked fluorescence of the lens. Fluorescence argued absorption. He elaborated the point in some detail. The striking difference in the capacity of various animals adequately to function in dim lights was difficult to conceive of except by a great range in transparency; it must be largely a question, ultimately, of how much energy was getting into the eye.

Mr. F. A. WILLIAMSON-NOBLE read an elaborate contribution, illustrated by means of the epidiascope, on

Inflammatory Pseudo-Tumours of the Orbit.

He dealt with three cases and explained that the term set out in the title had a clinical rather than a pathological significance; it caused proptosis, limitation of movement, increase in bulk of orbital tissues, and perhaps swelling of the lids. There was a slow onset, and none of the usual signs of inflammation. Macroscopically, the orbital contents, if removed, might strongly suggest tumour. Benedict and Knight were inclined to attribute these pseudo-tumours to focal infection elsewhere, which had been overlooked in the absence of symptoms and leucocytosis. But the evidence must be carefully sifted, and this should not be made a sort of scrap-heap for otherwise undiagnosable conditions. Birch-Hirschfeld made three useful groups of this condition. In the first he placed cases in which the recovery was spontaneous, or took place after the use of iodide of potassium, mercury, or quinine. In the second group an operation was performed without finding any tumour. The third group embraced the cases in which the macroscopical appearance of the orbital contents suggested tumour, but the microscope revealed a chronic inflammatory mass.

The first case related might be taken as a good example of the condition. It was that of a man, aged 25, who in July last attended hospital with marked proptosis of the right eye and much conjunctival injection. Movements were full and normal. Rhinological examination was negative. He was treated with mercury and iodide at once, without awaiting a Wassermann test. Three weeks later there was some limitation of movement in the right eye, and the proptosis was more marked. With glasses, vision in both eyes was 6/12. A month later he was taken into hospital, and mercury inunctions and potassium iodide were continued for a further fortnight, but without reducing the proptosis. Exploration revealed a hard mass of tissue in the orbit and no pus. Exenteration was performed a week or two later. He showed a photograph of the macroscopic appearance; there was a large white mass within the cone of muscles, moulded closely over the posterior surface of the sclerotic and quite surrounding the optic nerve. The nerve itself did not seem to be affected. The vessels showed great thickening, both the intima and the adventitia; in some instances this caused obliteration of the vessels. This was, no doubt, a gumma. In a similar case reported by Hine the Wassermann was negative, and, concerning the value of the Wassermann test, Harrison stated that it was frequent to obtain a negative reaction in cases of syphilis when only a small syphilitic lesion was present, and that help in doubtful cases was sometimes derived from a provocative injection of salvarsan or a derivative. Mr. Williamson-Noble's second case was that of a man, aged about 50, who, following influenza, developed what appeared to be a lymphoma. The condition seemed to have been predisposed to by the lowered resistance due to the influenzal attack. The remaining case of the condition was one in which a mass of young connective tissue formed as a result of irritation induced by the presence of cholesterin crystals. This was inflammatory only in the sense that it represented the reaction of tissue to injury.

The pre-operative diagnosis and treatment of the condition were very difficult. The presence of a lymphocytosis could not always be relied upon, as in two cases reported this was absent. The diagnosis involved a consideration of all the possible causes of proptosis, and he suggested that there should be an examination of the urine, especially for sugar; also a Wassermann test, and if this proved negative, repeated after a provocative dose of salvarsan.

Complement-fixation in regard to tubercle should be done, and a differential blood count, with a blood coagulation time. And there should certainly be a search for focal infections, with radiography of teeth and sinuses. Always the possibility of early Graves's disease must be considered, and an exploration should precede a decision to extirpate the orbital contents.

Mr. LINDSAY REA related a case of similar kind which had been under his care recently. The patient was a young man who was brought to hospital with his left eye proptosed, and the conjunctiva swollen and chemosed, so that the lids did not meet over the cornea. He denied venereal disease. Exploratory puncture with division of the external rectus revealed nothing. Subsequently the Wassermann was found positive. Vision in the eye concerned was reduced to bare perception of light. Three weeks later the other eye began to be proptosed. The man was put upon treatment by novarsenobillon, combined with iodide of potassium and mercury inunction. At the end of the third week the improvement was definite, and in the sixth week the eyes settled down, the lids again met, and vision was 6/6 in each eye. Even if the Wassermann had been negative, he would have persevered with antisyphilitic treatment.

Bi-temporal Hemianopia due to Fracture of Skull.

Mr. EGERTON GRAY showed a man who, in 1911, fell 12 feet and sustained a depressed fracture in the frontal region of the skull. There was severe epistaxis, and on recovering consciousness he complained of defective sight. There had been severe headache, and in certain positions there was double vision. He also lost the sense of smell. Pupils were equal and active, and there were no colour scotomata. There had been no albuminuria or polyuria, and his sugar tolerance was not increased. He had, however, peculiar nystagmoid movements of the head.—Mr. J. H. FISHER regarded the case as a very unusual one. The fracture must, in order to cause the symptoms, have run across the roof of the orbit and involved the cribriform plate and olfactory lobes, as well as implicating the optic chiasma.

Congenital Blindness without Obvious Ocular or Central Cause.

Mr. RAYNER BATTEN showed a sister (aged 6) and brother (aged 3) who were born blind, without obvious cause. The children were otherwise healthy and well formed. There were no evidences of congenital syphilis nor of central nervous disease. Wassermann was negative in both the children and their mother. The boy had about +6 of astigmatism, and the girl had hypermetropia in one eye, and hypermetropic astigmatism in the other. Whether the pupils reacted to light was doubtful. Both had slow nystagmus. —Mr. LESLIE PATON referred to two children in the same category whom he had had under observation for a number of years. These at first had head-nodding and nystagmus. They showed fine macular changes. —Mr. FISHER thought that in Mr. Batten's cases there were pathological changes in the retina and optic nerves. The boy had pallor of the disc, and the girl had thread-like retinal vessels, and in the lower part of her fundus was a definite sheathing with pigment of some of the vessels.—Mr. M. S. MAYOU spoke of a girl, aged 18, who was born blind and whose discs looked very similar to those of Mr. Batten's two cases. Two years after he saw her she died as the result of an accident, and the post-mortem showed she had large cysts occupying the occipital lobes, the cysts comprising a distension of the posterior horns of the lateral ventricles.—Dr. FRANCHESCHETTI (Zurich) thought it probable that these two children had a familial disease, and that it was likely the blindness might be due to colour-blindness. In the latter there was also a fine nystagmus.

Mr. P. G. DOYNE showed a patient with microphthalmia, a retinal cyst, and pedunculated growths along the line of the orbito-nasal fold.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

A MEETING of this Society was held at Manchester on Dec. 19th, 1924, Prof. A. DONALD, the President, in the chair, when Dr. KENNETH V. BAILEY read a paper on the

Pathology of Ectopic Müllerianoma (Pelvic Adenomyoma).

Dr. Bailey said that since the work of von Recklinghausen and Cullen towards the end of the nineteenth century—who first aroused full interest in the subject of "adenomyomatous" growths affecting the female pelvic organs—many authors had written on tumours of this class. In recent times, however, the condition had become associated pathologically with the name of Sampson, of Albany, U.S.A., and clinically with that of Donald, of Manchester. Hitherto, no attempt had been made to classify this tumour from a pathological and ætiological standpoint; its ætiology still remained in doubt and its life-history was, as yet, very imperfectly explained. However many instances of tumour formation there might be in the pelvis at the one time, they were all, ætiologically, part of the one pathological condition, and must, therefore, be looked upon as part of the one tumour. They were, in fact, all brought about by the periodic or occasional invasion of the various pelvic organs or peritoneal surfaces by either endometrial tissue or Fallopian tubal epithelium.

Dr. Bailey classified the various tumour formations, which together constituted this pathological condition of the pelvis, into two types: (*a*) endometrial type; (*b*) Fallopian tube type. These two types differed essentially in their gross pathology and even more definitely in their histological characteristics. Both types, however, might create widespread lesions throughout the pelvis. It was the ovary, however, which exhibited the results of the growth and activity of these tissues to the fullest extent. A relatively insignificant reaction might be the only evidence of this growth in the uterine wall when, in the same case, the ovary had been transformed into a distended sac containing dark, tarry blood, a product of the activity of the invading tissue. It was from the ovary, therefore, that the life-history of this condition could best be studied.

Dr. Bailey said that the chief differences in the gross pathology between the endometrial and Fallopian tube types of this condition were as follows:—

Endometrial Type.—(1) An affected ovary may exhibit any stage from that of possessing small, diffuse hæmorrhagic areas on its surface to advanced excavation and distension transforming it into a distended sac filled with chocolate-coloured fluid blood, and cellular debris. (2) The lesions produced in the ovaries, uterine wall, pelvic ligament, rectum, &c., are obviously of an active local invasive nature. The impression of great activity on the part of the abnormally placed tissue is produced. Excavation may be extensive. (3) The pelvic adhesions are of a very dense character. The ovaries are fastened to the uterine wall or broad ligament by actual new growth in many instances and are often very difficult to detach.

Fallopian Tube Type.—(1) Is evidenced by small scattered hæmorrhages on the ovarian surface, of varying colour from bright red to almost black according to their age; advanced conditions exhibit erosion of the ovarian surface. A small depressed scar may mark the site of an old deposit. (2) This type is characterised by the relatively light nature of the pelvic adhesions, differing markedly from the dense character of those produced by the endometrial type. (3) Blood cavities in the ovary are not produced. (4) Both macroscopically and microscopically there is the appearance of only slight invasiveness on the part of the misplaced tissue, which only penetrates at most to a depth of about 2 mm. below the surface of the organ in which it is growing.

The chief microscopical differences between these two types, Dr. Bailey said, would be evident in a brief description of their life-history.

Life-history of the Endometrial Type.

(a) As it Affected the Ovary.

Stage 1.—Not visible to the naked eye. It was seen microscopically to be of the nature of a deposit of typical endometrial tissue on the ovarian surface. Perhaps one or two typical gland spaces situated in fine fibrin network which also contained endometrial stroma cells might be situated on the surface of the ovary or perhaps scattered columnar cells identical with those which line the glands of the endometrium might form this primary deposit.

Stage 2.—Invasion of the ovarian stroma by this abnormally placed endometrium. (*a*) If the primary endometrial deposit occupied a relatively wide area on the ovarian surface, this stage was visible to the naked eye as a minute hæmorrhagic excavation thereon and microscopically the invading endometrium could be seen to have commenced its penetration of the ovarian cortex. (*b*) If the primary site were relatively small in area, this stage was marked by the production of a small, somewhat diffuse hæmorrhagic bleb on the surface of the ovary. Microscopically, a pseudo-cyst was formed immediately beneath the ovarian surface (but connected with it) containing the active endometrium and extravasated blood.

Stage 3.—(*a*) Misplaced endometrium invading over a relatively wide area penetrated the ovarian stroma in a wedge-shaped formation. The actual glandular elements were preceded by masses of stroma cells. This was the stage of intense activity on the part of the invading tissue, both in penetration and proliferation. (*b*) Endometrium actively invading from a relatively small surface area might do so by a long, apparently quickly formed channel, at the termination of which the most advanced endometrium was situated in one or more actively proliferating clumps.

Stage 4.—Commencing degeneration of the invading elements. At this stage the height of activity of the misplaced tissue was reached or passed. It was visible to the naked eye as a "seam" of chocolate fluid blood which stretched for varying distances into the tissues of the ovary and marked the track of invasion of the penetrating endometrium. The chocolate fluid blood was the long-retained product of the menstrual activity of the endometrium and was composed of blood corpuscles, blood pigment, degenerated epithelial cells, phagocytes, and cellular debris. Microscopically, the invading endometrium was always found in connexion with the deepest part of the "chocolate seam" and was seen to be undergoing degenerative change.

Stage 5.—Commencing cavity formation in the ovary itself. Further extravasations of menstrual blood by endometrium situated in connexion with a "chocolate seam" caused local distension of the seam by liquefaction of the surrounding ovarian stroma and an actual cavity was formed in the substance of the ovary. Microscopically, endometrial tissue of vitality perhaps equal to that found in association with Stage 4 was seen situated in close connexion with this cavity.

Stage 6.—Last stage. Here the ovary was transformed into a distended "sac" the size of a tangerine orange or even larger. The walls of this "sac" were composed of the thinned-out and compressed ovarian stroma itself, deeply and irregularly infiltrated by old blood. The extensively excavated ovary was filled with chocolate fluid blood, the product of the activity of the invading elements. Such an ovary was always densely adherent at the primary site of invasion to neighbouring structures —e.g., uterine body or the base of the broad ligament. Microscopically, the remains of degenerated endometrial tissue might possibly be found in the deepest parts of the large cavity.

The stages in the life-history of the endometrial type of this growth were thus brought about by a process of pure invasion of the affected organ—e.g., ovary—by the misplaced endometrium. Excavation was commenced with consequent cavity formation. The terms "chocolate cyst," "hæmorrhagic cyst" used by other authors were erroneous. A "blood cavity" was produced in the ovary by this process of excavation. There was no cyst wall produced by the activity of the foreign elements. Dr. Bailey believed that the ovary became adherent to neighbouring structures during Stage 2, when slight hæmorrhagic erosion or excavation had taken place on its surface. It might escape adhesion for a time in this stage when a small space was formed immediately beneath the surface, but would sooner or later become adherent as the area of primary deposit of the endometrial tissue became larger. The ovary was, therefore, adherent at a very early stage in the life-history of the tumour and remained so during the growth of it. There was no "perforation" of the "cyst" as described by Sampson and others. The mouth of the blood cavity was formed at the commencement of the growth inwards of the endometrial tissue, and the site of "perforation" mentioned in literature was the cavity mouth which was always found glued to some neighbouring structure. Dr. Bailey was of the opinion that the tissue found in these blood cavities and excavations was endometrium because (1) it was morphologically identical; (2) its function was the same—viz, menstruation—and this occurred concurrently with menstruation in the uterine endometrium; and (3) ætiologically, as he hoped to prove, the glandular and stromal elements were derived from the uterine cavity itself.

(b) Endometrial Invasion of the Uterine Body from Without.

Stage 1.—Implantation on the uterine surface of a clump of endometrial glands or epithelium and stroma cells. This, if extensive enough, might be visible to the naked eye as a minute hæmorrhagic spot or bleb of a somewhat diffuse nature.

Stage 2.—Active penetration and proliferation on the part of the invading endometrium. The actual glandular elements were preceded by masses of typical stroma cells which pushed their way in between the muscle bundles of the uterine body. Menstrual blood was extravasated into this "stromal bed" which in areas of intense extravasation became transformed into a highly hæmorrhagic, loose, spindle-celled matrix.

Stage 3.—Characterised by microscopical evidence of retrogressive change in the misplaced endometrium. The glands had become widely dilated and lined by cuboidal or low epithelium. They were either empty or contained old blood and were surrounded by a thin bed of stroma cells which did not exhibit any invasive activity.

(c) Endometrial Invasion as it Affects the Fallopian Tube from Without.

Dr. Bailey had seen only one case in which the Fallopian tube was definitely invaded by endometrial tissue deposited on its serous surface from without. In this the fimbrial end of the tube exhibited two small, discrete chocolate-coloured areas on its surface and another diffuse hæmorrhagic area at some little distance from these. Microscopically, the muscular wall of the tube could be seen to be invaded by typical endometrial elements having no connexion whatever with the epithelial elements of the tubal lumen. This, he held, was the only case of the kind as yet reported.

Life-history of the Fallopian Tube Type.

Stage 1.—Like the endometrial type, this stage was not visible to the naked eye. It consisted of a deposition on the ovarian surface of a mass or strip of loose Fallopian epithelial cells, of the same morphological characteristics as those which lined the tubal plicæ. These cells were of a high cylindric variety. Their sides were concave, the middle of the cell body appearing constricted. Their surfaces were relatively broad and were ciliated. Their nuclei were situated nearer the surface than the base. These cells were packed closely together in a somewhat disorderly manner when observed in rows, and a constant feature was that their surfaces presented a "dirty" appearance due to adherent particles of blood debris (fibrin) which had apparently been attracted by, and become entangled in, the cilia attached to them.

Stage 2.—Commencing invasion of the ovarian stroma of these cells. This took the form of a minute indentation in the ovarian surface lined by the invading cells and a very slight rarefaction of the subjacent tissue. There was no evidence of a "stromal bed" as in the endometrial type. This stage, also, was not visible to the naked eye.

Stage 3.—From this point penetration of the ovarian stroma continued until a stage was reached at which one or more definite gland-like spaces were formed at short distances below the ovarian surface. Often only one space was formed, rarely more than three or four together. These spaces were widely dilated, atypical in shape, as compared with endometrial gland spaces, and lined by the high columnar ciliated cell of this type. They always rested directly on the ovarian stroma. They had no "bed" of stroma cells. There was only a relatively slight rarefaction of the surrounding ovarian tissue, brought about in many of the cases by the effect of extravasated blood in the vicinity.

Stage 4.—From this point onwards the abnormally placed Fallopian elements began to degenerate. Very little further penetration took place. The affected ovary was never deeply invaded. There was no excavation. With degeneration of the epithelial cells lining these gland-like spaces and extravasation of the contained blood into the surrounding ovarian stroma, the life-history of Fallopian epithelial invasion of the ovary came to an end. Stages 3 and 4 could be detected in the gross specimen by the presence on the surface of the ovary of minute, discrete, hæmorrhagic spots, varying in colour from bright red to black, according to their age. A depressed scar might mark the site of a very old deposit.

Dr. Bailey held that Fallopian tubal epithelium was unable to invade the musculature of the uterine body. He had found evidence of it, however, in the ovarian ligament and Fallopian tube wall.

Ætiology.

Dr. Bailey believed the primary deposit on the ovarian surface (or any other surface) to be brought about by the "shedding" on to it of endometrial or Fallopian tubal epithelium emanating from the uterine cavity or Fallopian tubal lumen respectively, as the result of a process of retrograde menstruation or back-flow through the tubes, by which elements of this nature were eventually expelled via the abdominal ostium of the Fallopian tube and deposited on the surfaces of the various pelvic organs.

To prove this assertion he had examined the uterine cavity and the lumen of the interstitial, isthmic, ampullary, and fimbrial portions of the Fallopian tube in undamaged specimens of pelvic organs affected by this tumour removed during menstruation. In these he could demonstrate the presence of free blood and epithelial elements, the only possible source of which could be from the uterine cavity itself. That Stage 1 in each type was of the nature of a deposit on the surface of the affected organ he believed on account of the fact that its microscopical appearance could in no way be accounted for by any of the numerous theories hitherto advanced in the search for the ætiology of this condition.

Nomenclature.

Many names had been ascribed to tumours of the female pelvic organs containing aberrant epithelial elements. Some were suggested on ætiological grounds—e.g., "salpingitis isthmica nodosa," "adenomyositis tubæ," and "adenomyo-salpingitis"; others on a pathological basis—e.g., "adenomyoma" as the condition is called to-day, "endometrioma," as Blair Bell named it, or "adenoma" as Sampson latterly called it. Dr. Bailey, however, considered that from its pathology and ætiology, as he had described it, this tumour which was in itself (1) locally malignant, (2) did not tend to the formation of metastases, and (3) originated in whatever organ it was growing "from without," was most comprehensively described as "ectopic Müllerianoma."

The discussion was adjourned.

Specimens and cases were presented and discussed by the PRESIDENT and by Drs. BLAIR BELL, FOTHERGILL, IVENS, FLETCHER SHAW, and DOUGAL.

NURSING HOME FOR MIDDLE CLASSES AT LIVERPOOL. By the generosity of the late Mr. Robert Davies, shipowner, of Wallasey, and his executors, a committee of the Stanley Hospital, Liverpool, has been able to purchase and equip the beautiful mansion of "Kiln Hey," Sandford Park, West Derby, as a nursing home intended exclusively for the use of middle-class patients of limited means. A sum of £10,000 was presented to the committee and this with other generous donations has enabled the committee to make this pioneer effort to meet the needs of that large section of the public whose case is not served by the hospitals or private nursing home. The "Robert Davies" Nursing Home is managed by a committee distinct from that of the Stanley Hospital, but the chairman is common to both institutions. Thirty beds are available, but there is no resident medical staff, as each patient will be attended by his or her own surgeon or physician, who will conform to the rules of the home. Patients will be charged three guineas a week in addition to professional fees. Maternity patients will be received only by special permission, and no infectious or mental cases will be admitted.

Reviews and Notices of Books.

THE EVOLUTION OF MAN.

Essays by G. ELLIOT SMITH, M.A., M.D., Litt.D., F.R.C.P., F.R.S. London: Humphrey Milford, Oxford University Press. 1924. Pp. 158. 8*s.* 6*d.*

THE essential theme of this book, as the author says in his preface, is the development of the view of the importance of the cultivation of vision in the evolution of man's intellect. Such a theme calls for a general review of the course of human evolution, and this is provided in the three main chapters of the work—on the Evolution of Man, Primitive Man, and The Human Brain. A "foreword" on Man's Pedigree leads up to the first chapter. The subject-matters of the chapters are derived from various addresses given at different times before different audiences: they have been brought together to meet the wants of anthropological students who desire information on these more recent views. But for those also who are only amateurs in the science this book will be a fascinating study, for it is the work of an acknowledged master of the subject, dealing lucidly and learnedly with many of the wider problems contained within it. Moreover, there are no sterile references, nor collections of unrelated facts, to annoy and bore such an amateur anthropologist, while the serious student has an authoritative work to which he can refer with confidence. We confess that when we had finished reading this little book we turned back and read it through again, with increasing pleasure and profit. We had hoped at first to come across some discussion of such things as the anatomical details of the Rhodesian skull, or of the reasons for refusing descendant rank to the Neanderthal man with reference to the original owner of the Mauer jaw, or maybe some talk about the dentition of Propliopithecus and Eoanthropus, for Prof. Elliot Smith's remarks on these and many other such points would be of great interest and importance; but one recognises, of course, that such matters do not really come within the scheme of this book and would be out of place. The fundamental difference of outlook between the "historical" and "evolutionary" schools of ethnological thought are dealt with vigorously by Prof. Elliot Smith, who is a leading exponent of the former school, and does not spare his opponents in his trenchant and reasonable criticism.

The book is not only of great interest, but it is one that will give some idea of the present trend of anthropological thought to those who are not concerned as experts in the formation of it. It has some excellent illustrations and is well produced.

PRACTICAL SURGERY.

By VICTOR PAUCHET. Translated by F. R. B. ATKINSON, M.D., C.M. Edin. With a Preface by Sir CHARLES GORDON-WATSON, C.M.G., F.R.C.S. London: Ernest Benn, Ltd. 1924. Vols. I. and II. Illustrated. Pp. 252 and 293. 18*s.* 6*d.* per vol.

THIS is an original type of book in that it is an atlas of drawings made from actual operations, accompanied not simply by a description of procedure, but by remarks on the advisability of employing the different methods in the light of the author's own experience. This is a commendable feature, especially so as the advice tendered is essentially practical and obviously well considered. Of the two volumes, the second is the more valuable. In the first an indifferent and inadequate chapter on surgical technique is followed by descriptions of operations upon hernia, hydrocele, hæmorrhoids, and a few other matters which proceed upon generally accepted lines. An interesting method of operating upon vesico-vaginal fistula is described, by which free access to the site of operation is obtained. The results of it are said to be exceptionally good. The author adopts Sir Arbuthnot Lane's views as to the far-

reaching results of intestinal stasis and consequently recommends colectomy or partial colectomy for their relief. The chapter on gastro-jejunal ulceration gives good advice and shows very well how operations for its relief should be carried out.

In the second volume the author has been assisted in places by Thiery de Martel, J. L. Faure, and H. Ruberis-Duval. The remarks upon the use of radium in carcinoma uteri, carcinoma recti, and fibroids of the uterus are worth close study. Transperitoneal nephrectomy for large malignant tumours is performed through a transverse incision. Perineal prostatectomy is accorded its right place and a practical point in the technique of enucleation suprapubically in two stages is brought out. If there is much delay after the cystostomy the line of separation may have fibrosed up. Pauchet points out that when such difficulty is met, it is right to stop the attempt at removal of the prostate and to wait for some days, when a new line of separation will appear as the result of the inflammatory reaction. We read that the author has performed five complete gastrectomies and that one subject is in excellent health after some years. Gastro-enterostomy, according to Roux's method, is recommended for some purposes and the Murphy button still seems to be used.

There are one or two mistakes in translation, as on p. 3, Vol. II., where the first word on line 18 should obviously be "above" not "below," and on p. 111, Vol. II., where operating upon a prostate in two stages is stated to double the chances of infection. On p. 143, Vol. II., the translator tells us to pass a jejunal loop across an opening in the transverse mesocolon instead of through it, and on p. 140 of the same volume he refers to an "abandoned stitch." The pictures are excellent and show everything that it is essential to see.

NOTABLE BRITISH TRIALS.

Trial of Henry Fauntleroy. Edited by HORACE BLEACKLEY. London and Edinburgh: William Hodge and Company, Ltd. 1924. Pp. 269. 10s. 6d.

THE latest volume in the series of Notable British Trials tells the story of Henry Fauntleroy, to which there are added as appendices the brief biographies of 15 other forgers, who were convicted and hanged between the years 1750 and the accession of Queen Victoria, in the first year of whose reign capital punishment in cases of forgery was abolished.

There is no particular medical interest in the Fauntleroy case, and it is difficult now to realise why it should have created the vast excitement that it did. Fauntleroy, born in middle-class circles, was a man of good extraction and heredity; he was licentious, but the Regency was not strait-laced, and he had no mental aberration of any kind; his large forgeries—for a quarter of a million was a large sum 100 years ago—were committed in order to maintain the bank, of which he was managing partner, in such an apparent position of solidity that he could continue to draw an income which was wholly unjustifiable. No great passion of any sort seems to have influenced his life, and he was probably impelled to a capital crime by nothing more forcible than his vanity, which could not bear the public appearance of failure, or the surrender of a reputation as a *bon viveur*. Fauntleroy was hanged outside Newgate in the presence of the largest crowd which had ever assembled for the loathsome recreation of seeing a hanging, and the stringent precautions in guarding the body after execution led to the circulation of the rumour that the corpse had been resuscitated by a friendly surgeon. The same story had been told previously in connexion with many famous criminals from Jack Sheppard downwards, and in the case of Dr. Dodd, who was hanged for forgery some 40 years before Fauntleroy, such an attempt really was made. At any rate the popular story is that the hangman, whose duty it used to be to complete the dreadful work by pulling down the victim from the knees, arranged to support the body of Dodd from below while it was being taken down; meantime the driver of a hearse which was in readiness had been told to go with all speed to an address where a hot bath had been prepared and where the great John Hunter was waiting, or some other celebrated surgeon. It seems to be true that in the case of Dr. Dodd an unsuccessful attempt to resuscitate the hanged man was really made, though we know of no evidence to connect Hunter with the exploit, and indeed at the particular date he was a severe physical sufferer himself.

Mr. Bleackley has edited both the main story and the various appendices with care and skill, and we gather from the book, now here and now there, many vivid pictures of life at the close of the eighteenth and the beginning of the nineteenth centuries.

THE STRUCTURE OF PROTOPLASM.

La matière vivante, organisations et différenciations, origines de la vie, colloïdes et mitochondries. By J. KUNSTLER and F. PRÉVOST. Paris: Masson et Cie. 1924. With 82 figures. Pp. 252. Fr.18.

SINCE men had microscopes it has been a regularly recurring dream that it was possible to get behind cells and find in the intimate structure of protoplasm some smaller units which should represent the ultimate basis of life. Béchamp had his microzymes, Altmann his bioblasts—which at any rate have the advantage of being easily and plainly stained so that they make pretty microscopic objects—there have been many micellæ and nowadays mitochondria are thought by some to be the same sort of thing. Prof. Kunstler believes that living matter (which he prefers to call "sarcode" rather than "protoplasm" because the former word was used first and by a Frenchman) is composed of vesicular elements either joined together in stable and compact masses as cells or diffused in the body-fluids and capable of motion and an autonomous life. He is at some pains to point out that he advanced this view before Bütschli put forward his spongy interpretation of protoplasm, and his line of attack may be surmised from his giving in a footnote the curious bit of history that "this German professor during the invasion of 1870–71 had the good taste to date his papers from the various French towns he passed through." He differs from most recent authors in the same field by believing that chemical reactions cannot explain the phenomena of life, and that the curious behaviours of colloids and emulsions have no real analogy with vital activities; there is no continuity between live and dead. The illustrations are mostly bad micro-photographs and Prof. Kunstler's interpretation of them will not carry universal conviction.

UROLOGY.

Urologische Operationslehre. By Prof. Dr. FRITZ VOELCKER and Dr. ERICH WOSSIDLO. Leipzig: Georg Thieme. 1924. With 504 illustrations. Pp. 654. $8.30.

THIS book on genito-urinary operations is comprehensive and is, moreover, generously supplied with illustrations. In it an account is given not only of the more usual surgical procedures known to the general surgeon, but also of those intravesical operations carried out through cystoscopes and urethroscopes that belong more to the province of the specialist. The ingenuity of the German school of urology in designing and manufacturing cystoscopes and urethroscopes is well known, and it is not surprising, therefore, that this portion of the work is so up to date and complete. In it are included descriptions and illustrations of several new instruments that have not yet appeared in English literature, for example, cystoscopes for the application of radium to the bladder growths and various new forms of operating forceps, scissors, and snares for use in operative cystoscopy. In the chapter on operations on the prostate it is, perhaps, surprising to find that so little attention has been given to per-urethral operations and especially to diathermy.

It is true that Bottini's operation is described, but surely this procedure belongs only to the past and might be allowed to drop out of text-books except as an historical reference.

These points are, however, of minor importance, and the book is probably the most important, comprehensive, and useful work that has appeared since the war on this particular subject in the German language. Both authors and publishers are to be congratulated on the result of their efforts.

PSYCHOLOGY AND THE SCIENCES.

Edited by WILLIAM BROWN, M.D., D.Sc., M.R.C.P. With contributions by J. S. HALDANE, R. R. MARETT, F. C. S. SCHILLER, L. P. JACKS, A. E. J. RAWLINSON, M. W. KEATINGE, WILLIAM BROWN, and T. W. MITCHELL. London: A. and C. Black. 1924. Pp. 184. 7*s*. 6*d*.

PSYCHOLOGY, as the author of the third essay in this book points out, seems to be a medley of discrepant and antagonistic schools. Yet its importance to such subjects as ethics, logic, education, and theology is indicated by these essays, which formed the material of eight lectures delivered at Oxford by active workers who speak with authority, each upon his own subject. Written in a scholarly manner, they are sometimes brilliant and always entertaining; never prejudiced in any bad sense of the word, they yet show the influence of his own specialty upon the individual writer. Prof. Haldane, for example, looks forward to the time when, with an adequate physiology of the nervous system, the "confused pseudo-psychology of the unconscious" will disappear—a point of view against which Dr. William Brown is moved to gentle remonstrance. Principal Jacks fears that psychology may undermine the ground on which ethical construction has to rest, whilst, on the other hand, Dr. Schiller hopes to extract from psychology abundant stimulus for a really competent and progressive science of logic. Dr. Keatinge, in contrasting Bain's "Mental and Moral Science" with McDougall's "Outlines of Psychology" brings out clearly the ineffectiveness of the older psychology in its bearing upon life and conduct. Dr. T. W. Mitchell, an ex-president of the Society for Psychical Research, discusses in the final chapter the theories of multiple personality and mediumistic "control," and inclines to the belief that the medium may acquire knowledge by some other channel than the ordinary media of the senses. The book is an interesting summary of the attitude of thoughtful men towards the newer developments of psychology.

BIOCHEMISTRY.

A Laboratory Course for Medical Students. By I. FROST, M.B., B.S. Lond., M.R.C.S. Eng., L.R.C.P. Lond., Biochemist, Medical College, Madras; formerly Assistant Lecturer in Physiology, University of Birmingham. Madras: Government Press. 1924. Pp. 56.

THIS little book covers a multitude of subjects in practical biochemistry. The first experiments are designed to demonstrate the properties of colloidal solutions, and to elucidate various points such as hydrogen-ion concentration. Then follow the usual tests for proteins, fats, carbohydrates, blood, milk, &c. This orthodox section, as one might term it, is very condensed, yet at the same time contains practically all the experiments described in larger books. By far the most interesting part to discuss is the unorthodox section. The author has boldly separated himself from the traditional "advanced" experiments, with rabbits' livers, meat, and bread, and has struck an entirely original note for a small elementary laboratory guide. In place of the usual depressing experiments, he has substituted methods of blood analysis, colorimetric determinate of hydrogen-ion concentration, the estimation of urinary diastase, &c.; methods of preparing buffer solutions, with a complete range of pH are given; the Van der Bergh reaction is described. Coming upon these descriptions without warning in the middle of the book reacts upon the reader like a sudden breath of fresh air. In his 56 pages the author gives his students a much wider view of the subject than many of the so-called standard works.

The book is obviously meant as a summary, and in places savours very much of the "cram" book. On the whole, however, the author is to be congratulated for his courage in attempting to include some really practical methods, and in his attempt to stimulate the reader to interests outside egg-white, bread, and lard.

THE STORY OF EARLY CHEMISTRY.

By JOHN MAXSON STILLMAN, late Emeritus Professor of Chemistry, Stanford University. London and New York: D. Appleton and Co. 1924. Pp. 566. 18*s*.

IN writing this book it has been the author's endeavour "to tell the story of the development of chemical knowledge and science, from the earliest times to the close of the eighteenth century, in a connected and systematic way, not as a condensed encyclopædia." The fact that most of the earlier chemists were physicians makes such a book of interest to the student of the historical aspect of medicine, as well as to the student of chemical history; in this connexion we may remind those who are in favour of curtailing the time spent by medical students on chemistry, that so long ago as the sixteenth century Paracelsus was urging physicians of his time to recognise the importance of chemistry in the development of medicine. Some of the disabilities under which the earlier workers laboured are not unknown at the present day. We are told of Paracelsus (1526–41) that although he wrote voluminously, only a few of his more important medical and surgical works were published during his lifetime, since the opposition of the faculties more than once blocked his plans of publication. He often emphasised his conviction "of the necessity of experiment and experience of the physician as against looking for all knowledge to the traditional authorities." In contrast to this we read of Sylvius (1659–74) that his tendency was like that of nearly all the medical chemists of his period, "to accept a plausible analogy instead of waiting for more basis in facts for his conclusions."

The book is written attractively. We regret the death of the author, which occurred before the first proofs were received from the publishers.

OTO-RHINO-LARYNGOLOGY.

La biopsie clinique en oto-rhino-laryngologie. By Dr. ANDRÉ AUBIN, Assistant du Service d'Oto-rhino-laryngologie de l'Hôpital St. Louis. Paris: Vigot Frères. 1924. Pp. 334. Fr.30.

BIOPSY is defined as "the operation which consists in excising from the patient a fragment of pathological tissue with the view of establishing the histological diagnosis of the disease with which he is affected." But the author has not attempted to give an ordered account of the histology of diseases of the larynx, nose, and ear, and the reader will look in vain for a systematic description of the pathological varieties, for instance, of neoplasms of the larynx or nasopharynx, or for a discussion of the types of bleeding polypus of the septum. The first chapter of this book is occupied by an exposition of the value of biopsy in making or confirming a diagnosis, and the thesis is abundantly proved and supported by reports of cases; but it would hardly seem necessary to labour this point, as though the microscopical examination of a fragment of diseased tissue were not already a routine procedure of every-day practice. An excellent, but too short, description of the histological technique is followed by a too lengthy account of the methods of removing pieces

of tissue from the various regions; this includes a description of direct and indirect laryngoscopy and œsophagoscopy, methods perfectly familiar to all workers in these regions. The final chapter contains results of observations on diseases of the various regions, and is not intended to be in any way a complete account of the pathology of the nose and throat. It contains a description of a number of interesting cases observed by the author, but is of small direct service for reference or as a source of information.

TESTS OF FUNCTIONS.

Funktionsprüfung Innerer Organe. By K. GLASSNER, L. R. GRATE, G. LEPEHNE, E. MAGNUS-ALSLEBIN, O. PLATZ, VAN DER REIS, M. ROSENBERG, and A. WEBER. Berlin: Julius Springer. 1924. Pp. 128. Gold marks 2.40.

THIS small volume is divided into eight chapters, each being written by a separate author. The first chapter deals with methods of investigating the functions of the heart by physical means, the second with electrocardiographic methods. A series of typical tracings are included. In the third chapter the functions of the stomach are treated in such an elementary fashion as to be devoid of interest. There is no account of the fractional method of gastric analysis, and, indeed, this chapter is in most respects out of date. The next chapter dealing with the lower sections of the alimentary canal is interesting in that it contains a fairly detailed account of test-meals and methods for the analysis of fæces. The following chapter, which contains an account of methods of investigating the liver, is without doubt the best in the book. It is quite up to date, and all the recent advances, such as Van den Bergh's reaction, are adequately described. The section upon renal function tests is again old-fashioned, and although a detailed account of Ambard's coefficient is given, the importance of blood analysis is barely mentioned. Tests for pancreatic function are dealt with in a sketchy manner. The authors have mis-read the names of several English workers. Thus the work of Bennett and Dodds is referred to as Parnett and Dodd, and that of Mackenzie Wallis as Wallis and Mackenzie. The final chapter deals in elementary fashion with the investigation of the vegetative nervous system by means of the action of drugs. No reference appears to be made to the work of Goetsch. It is unlikely that this volume, despite the imposing number of contributors to its hundred odd pages, will receive a warm welcome in this country.

THE EDUCATION OF BEHAVIOUR.

Second edition, revised and partly rewritten. By I. B. SAXBY, D.Sc., Senior Assistant in the Women's Education Department of University College, Cardiff. London: University of London Press, Ltd. 1924. Pp. 264. 6*s*.

THIS book sets out those modern principles of education which, requiring the teacher to study the why and wherefore of the actions of the child, make educational work none the easier but infinitely more interesting. Using the dynamic concept of psychology, the author draws upon W. McDougall and A. F. Shand for an account of the instincts and their development into sentiments and complexes, the use of the latter term indicating that the Freudian point of view is embodied in the general theme. We note incidentally that *impulse* is substituted for the word *instinct* because of the diversity of opinion in regard to the definition of "instinct," but to define impulse as an *inborn* tendency surely clashes with popular usage. After laying these foundations the author considers such matters as the growth of habits, the training of character, and the problems of adolescence. A useful example of the practical application of theory is found on page 234: "To ask a child 'Why do you steal?' 'Why do you lose your temper?' is to invite lies. The only true answer would be, 'I don't know; something in me makes me do it.' But, if he thinks he ought to have a reason, he will find one, and since such a reason will make the outlet safer for the unconscious complex, he will probably feel convinced that he has found the true one."

The reader who fully understands the principles involved in this quotation has a useful grasp of modern psychology, and the book will aid him to obtain that grasp. Unlike many popular works on psychology, this book is soberly written and is not tendencious; it admirably fulfils its aim of helping not only teachers but all who have to deal with adolescent boys or girls.

WESTMINSTER HOSPITAL.

1. *Westminster Hospital Reports.* Edited by E. ROCK CARLING and HILDRED CARLILL. 1924. Vol. XIX. Pp. 299. 7*s*. 6*d*.
2. *Westminster Hospital.* An Outline of its History. By W. G. Spencer. London: Henry J. Glaisher. 1924. Pp. 120.

OF these two books the latter is a reprint of the first article in the former, and a very good example of what a hospital history should be. Mr. Spencer begins by giving a topographical survey of Westminster from early times until the present day, which is particularly interesting, for few districts in the London area have seen more changes than Westminster. One of the most striking is the conversion of the singularly gloomy-looking Tothill Fields Prison and its site into the annexe of the Army and Navy Stores, the S.W. District Post Office, and Westminster Cathedral. Westminster Hospital took its origin from a meeting held on Jan. 14th, 1715, at St. Dunstan's Coffee House, Fleet-street, attended by Henry Hoare, William Wogan, Robert Witham, and Patrick Cockburn. Hoare was the then head of the well-known banking house; Wogan was a writer on religious subjects, and corresponded at a later date with Whitefield and Wesley. Witham was possibly a brewer, and Cockburn had been one of the assistant curates at St. Dunstan's. The four men founded a Charitable Society, the objects of which were defined in a pamphlet entitled, "A Charitable Proposal for Relieving the Poor and Needy and Other Distressed Persons." By 1716 the society had determined "that our principal care be confined to the sick and needy persons of St. Margaret's, Westminster." The result of this was that by Lady Day, 1720, a house in Petty France was opened as an infirmary, the first patient being admitted on May 11th. The infirmary was moved first to a site opposite the end of the present Caxton-street, then to some houses on the site of what is now Westminster Chapel; this was about 1733. In 1770 the name infirmary was changed to hospital. Here it remained until 1834, when the patients were moved to a new hospital erected on the present site.

Mr. Spencer gives a list with biographical details of the members of the medical and surgical staff from the beginning, together with all sorts of interesting details about the nursing and other domestic affairs of the hospital. These were by no means satisfactory in the early days, mainly owing to the fact that the governors, whose sole idea was economy—i.e, to pay the lowest wages and salaries, naturally got the worst type of service, and all kinds of petty pilfering occurred. Nursing was not really satisfactory until 1873, when the two Misses Merryweather were appointed lady superintendent and matron respectively. The Medical School was started in 1840. In 1923 the hospital was closed for renovation, practically reconstruction, and was reopened on July 15th, 1924. We have been able to give but the merest outline of Mr. Spencer's thorough account, but the whole of it is good reading. The remainder of the report comprises the usual statistical tables and sundry papers upon medical and surgical cases, of which, perhaps, the most interesting are: No. 4, An Analysis of Cases Coming Under the Jurisdiction of H.M. Coroner, &c., by Dr. Braxton Hicks, and No. 10, the Late Results of Gunshot Wounds of the Abdomen, by Mr. G. T. Mullally and Dr. Basil Price.

THE LANCET.

LONDON: SATURDAY, JANUARY 17, 1925.

QUERY DRUNK?

AMONG the physical conditions investigated in courts of law, where medical evidence is of essential importance in determining the issues involved, two—namely, insanity and drunkenness—have a common feature which distinguishes them from other variations of normal health. To borrow a phrase from Sir JAMES PURVES-STEWART'S lucid and valuable address on Acute Drunkenness, delivered before the Society for the Study of Inebriety on Tuesday last and published in THE LANCET this week, neither is "a simple clinical entity like a broken bone or a consolidated lung," as to which medical evidence must almost necessarily be accepted in favour of one side or the other. And as to the existence of insanity or of drunkenness—and they may occur in combination—lay witnesses have their say in most cases involving legal question, and give evidence upon which members of a lay tribunal, magistrates, jurors, or judges, consider themselves fully entitled to form independent and conclusive opinions in the light of their general experience of life. This introduces a difficulty of which medical witnesses should be fully aware, and which at times leads to conclusions which medicine cannot accept as satisfactory. Sir J. PURVES-STEWART'S address should be read in conjunction with Dr. R. T. WILLIAMSON'S paper on Mortality from Motor Traffic, which we publish also this week, when it will be realised, perhaps more fully than before, that the huge increase of motor-drawn vehicles which has taken place in recent years, and which shows every promise of continuing, has added fresh importance to the diagnosis of drunkenness, while introducing variations of the nature of the evidence required with regard to it. The man arrested a few years ago for being drunk when in charge of a vehicle had to meet an accusation in much less serious circumstances when his wheels were drawn by a horse, upon whose "horse-sense" he, and the public, to some extent relied; the man who now is brought before the court for drunkenness when driving a motor-car or lorry is more than occasionally required to stand a charge of manslaughter. It becomes now a charge of manslaughter if anyone has been killed through the alleged intoxication of a driver; it is potential manslaughter, visualised by the tribunal, if an arrest by the police is believed to have averted the offence of an intoxicated driver.

It is to be noted that the medical aspects and practical tests of acute drunkenness, as considered by Sir J. PURVES-STEWART, appear to divide the cases of drunkenness, presenting themselves for diagnosis through action of the police, into two main classes. In the one class the man charged may be the victim of physical conditions of which the police who arrested him were naturally unaware, conditions of which the symptoms are similar to those of intoxication by alcohol, but which, in fact, are due to entirely different causes. An extraordinarily apposite illustration of this sort of case is given by Sir J. PURVES-STEWART, furnished by a medical colleague. Here the driver of a car was suffering from chronic Eustachian catarrh and frequent labyrinthine vertigo. Having drunk a glass of gin and vermouth, which imparted to his breath the odour suggestive of alcoholic intoxication, he allowed the car which he was driving to mount the footpath and come into contact with a foot passenger, having been compelled to avoid another foot passenger at a street corner. Conviction was followed by an immediate appeal and a rectification of the miscarriage of justice; and in this case there were full opportunity and means for setting right the excusable error into which the police had fallen. This will usually occur where the accused has a physical excuse to account for an accident. Analysis of the cerebro-spinal fluid, which Sir J. PURVES-STEWART finds the only, or at any rate the most convincing, way of proving the presence and absence of alcoholic intoxication is a drastic proceeding which can never become a popular test. Non-medical evidence for the elimination of alcohol as the cause of the symptoms observed will naturally be called to supplement scientific testimony, but such evidence is not always at the command of the man or woman brought before the magistrate as drunk and disorderly or incapable. In these cases reliance must be placed upon the experience of the police surgeon, who fully realises that the easy course of confirming the police view has often led to injustice. Where the accused can produce any evidence that what have seemed to the police to be the manifestations of intoxication are the results of physical default, we may be certain to-day that careful note will be taken of such a defence, which will be complete if the misleading symptoms persist after the period of alcoholism should have gone by.

The second class of case where careful consideration of the tests for drunkenness is required, and where increasing use of motor vehicles has multiplied the examples, is the accident occurring when the driver is not fully alert. A motor-driver has, to use Dr. WILLIAMSON'S phrase, "a terrible weapon to control," and the danger in which he may place his fellow citizens at any time may be less apparent than it should be to his mind if he has consumed alcohol in far smaller quantities than would bring him under the notice of the police as a pedestrian or as the driver of a horse. The driver we are now considering is in normal health and not able to assign the symptoms observed in him to any previously existing condition not caused by alcohol. He is not so intoxicated, we may here also suppose, as to be helpless, disorderly, or quarrelsome. Nevertheless, his conduct as a motor-driver may call for the notice of the police. The customary story of such a case is that the driver vehemently disputes the justice of his arrest, and denies that alcohol has anything to do with the alleged irregularity in his conduct as a driver. He is brought to the police station, and having been seen by the inspector in charge, a police surgeon examines him, and perhaps some other doctor, possibly his usual medical attendant. In the meanwhile his condition in respect of drunkenness may have changed considerably. He may have grown worse than when he was arrested, or he may have shaken off to a great extent the supposed effects of what he has imbibed. He may have been excited and have become worse, or he may have grown calmer. In any case, the medical man who examines him is not likely to find him as he was when first taken into custody, and his condition is not that of a man who has been recently helpless from drink. In these circumstances the foundation of a definite opinion by a medical practitioner may be difficult, and its enunciation is not rendered easier by the attitude of some magistrates, who dislike explanatory phrases, and expect a witness to answer "Yes" or "No" to the question "Was the prisoner drunk?" while neither magistrate nor doctor is agreed upon any definition of drunkenness.

Sir J. PURVES-STEWART makes it plain that it is difficult to supply a definition of drunkenness satisfactory to medical men and at the same time convenient of application before a lay tribunal. Moreover, drunkenness which a magistrate would rightly condemn in the case of the driver of a car or lorry, differs from that which is brought to his notice in other connexions. On the whole, in view of the difficulty of defining and proving, or disproving, drunkenness in its medico-legal aspects, it is well that we can accept the estimate that in nine cases out of ten the policeman's diagnosis is correct—we might even fix the proportion of right decisions by the constable at a higher figure. The matter deserves serious consideration when we find how steadily and how rapidly the number of fatal accidents due to motor vehicles has increased and is increasing. Mistakes may be made and it may, at times, be the function and the privilege of the medical witness to prevent or to correct them by careful diagnosis. At others it will be his duty to see that men who drink intoxicants when they know that they have to drive should have their condition fully explained to the authorities responsible for the public safety. Dr. WILLIAMSON suggests that motor-car drivers should be fined for every fatal accident. We do not endorse this as a practical remedy, nor is it, we think, consistent with the generally accepted view of justice. We are more in accord with his opinion that all drivers should abstain from alcohol during their hours of duty, and should be required to produce a certificate that they are temperate as regards alcohol. That they should be total abstainers strikes us as a counsel of perfection impossible to carry out. The enforcement of sobriety among drivers by all possible means would tend to the protection of the public and would be possible in some degree in a class which is already compelled to be officially licensed. In any case, the prevention of charges of drunkenness is of an importance to the public at least equal to that of the accurate diagnosis of intoxication in the individual accused.

THE PANEL PRACTITIONER'S RIGHT OF APPEAL.

SOME misunderstanding has arisen regarding the scope of the new rules for appeal under the National Health Insurance Acts which came into force at the beginning of the year. The amended form of Rules 1 to 11 of Order LV B of the Supreme Court, printed in THE LANCET of Jan. 3rd, refers only to appeals from ministerial decisions under Section 89 of the National Health Insurance Act, 1924, on questions relating to the liability of employed persons to be insured or to the amount of weekly contributions payable. These Rules do not in any way affect the important question of the panel doctor's right of appeal to the Courts against ministerial decisions affecting him, or the equally important question of his right to require a case to be stated for the consideration of the High Court. The position on these matters still remains as follows. Against the infliction by the Minister of a pecuniary penalty there is no right of appeal and no means of questioning the Minister's decision, provided that the Minister in arriving at his decision has followed the prescribed procedure. It will be recalled that the Minister's unrestricted power in this respect was recently brought into prominence by a case in which the Minister inflicted what was very widely regarded as the excessive penalty of £1000. Against any decision given by the Minister in his judicial capacity on an appeal from a decision by an insurance committee, there is also no right of appeal, neither can an appeal be lodged against what the Department regard as the administrative act of the Minister in removing a doctor's name from the panel. It is true that the provisions of the Arbitration Act, 1889, are applied to the hearing or inquiry which precedes the latter two classes of ministerial decision, but as regards opening the doctor's approach to the Courts the effect of this is no more than to provide that at any stage of the proceedings the Minister may, or, if directed by the Court or judge, must state as a special case for the opinion of the Court any question of law arising in the course of the proceedings.

From the very inception of the National Health Insurance Act of 1911 the medical profession have considered that the opportunity afforded to the doctor to approach the Courts has been inadequate. Prior to 1913 the view was strongly pressed that the right of final appeal to the Courts against ministerial decisions should be widely recognised. Subsequently this view was somewhat modified. It was recognised that such rights could not be unilateral and would have to be extended to insured persons, approved societies, and insurance committees, with the resultant risks to the doctor of expense and undesirable publicity; it was also felt that the Minister, being specially conversant with the whole subject-matter and alive to the importance of adequate continuity in decisions, might be the most suitable tribunal for deciding the majority of cases. There remained, however, the belief that there should be some further right of appeal against the Minister's decision to remove a doctor's name from the panel, and the recent case to which reference has been made revived the demand for some check upon possibly arbitrary or unjust action by the Minister in the infliction of a pecuniary penalty. The present view of the central representatives of the medical profession on these matters is set out in the draft memorandum of the evidence to be placed before the Royal Commission on National Health Insurance by the British Medical Association. As may be seen from the summary of this memorandum, which we printed last week, the view is that, while the insurance doctor might justly be made liable to penalty for the wilful charging of unauthorised fees and for such general conduct as is held to be detrimental to the interests of the service, and might be subject to serious official action for the making of wilfully false statements in connexion with the records, reports, and certificates which he has undertaken to furnish, general questions of supposed neglect or lack of success or improper behaviour on the part of the doctor should be solved by the exercise of the patient's right to change his doctor at any time, just as cases of unreasonable conduct on the part of the patient should normally be dealt with by the doctor's right to notify that he no longer desires to be responsible for the case.

If these principles are adopted it is thought that the present machinery should not on the whole be inappropriate to meet the majority of cases, if two further safeguards are provided. These are: (*a*) in cases of infliction of penalty, an appeal to the Courts should be possible, not only on the ground of improper procedure, as at present, but also on the ground that the penalty inflicted is out of proportion to the offence; (*b*) in cases of proposed removal from the panel the doctor should have the right of appeal to a duly constituted central professional committee, and that not until that committee advises the course should the Minister be able to remove a doctor's name from the panel. The General Medical Council would be the natural tribunal to hear such appeals if to do so came within its statutory scope.

UNCALLED-FOR APPENDECTOMY.

How often has the vermiform appendix suffered the fate of the innocent scapegoat and been cast into the wilderness for the sins of the abdomen? Dr. Henry Wald Bettmann, of Cincinnati, in a paper on Diagnostic Errors Leading to Uncalled-for Appendectomy,[1] places the figure high, and he supports his contention by many quotations from published articles, mainly American, which, if they represent the state of affairs prevalent at the moment in the United States, show the need for a very drastic revision of the diagnostic symptoms of appendicitis. "In 1920 Hugh Cabot stated that in large surgical clinics hardly a day passes on which patients who have had their appendices removed without relief do not present themselves. The following year R. F. O'Neil informed us that about 25 per cent. of the patients in the Massachusetts General Hospital who had ureteral calculi had had operations on their appendices or the abdominal organs before a correct diagnosis was made. In 1922 S. A. Chalfant called attention to what he called a notorious fact that the ultimate results of operations for chronic appendicitis are among the poorest in surgery." The justification for the operation lies, Dr. Bettmann is careful to point out, not in the pathological condition of the appendix as found by the surgeon or pathologist, but in the clinical results obtained by the operation. He sets out clearly the difficulties attaching to the diagnosis of the chronic appendix and particularly refers to the chances of error in diagnosing appendicitis from subjective symptoms alone (right iliac fossa pain) in the absence of previous attacks.

There is, however, a very real distinction to be drawn between difficulty of diagnosis and want of care in examination. Dr. Bettmann's estimate that two-thirds of a series of 170 cases unsuccessfully operated on had never been carefully studied before the operation would seem to point to the latter cause rather than the former; but one cannot help believing, and indeed hoping, that Dr. Bettmann has painted the picture in rather lurid colours to press home his point. To us in this country such a statement is frankly astounding. It may be, however, that there is less risk of inadequate study on this side of the Atlantic, where the patient is rarely operated on by the medical man making the first observation, and indeed in our hospitals patients are most carefully examined by three or four different experts before the diagnosis is decided. Further, we place less reliance upon the X ray diagnosis of the condition. Dr. Bettmann does not mention the confusion which may arise in the differential diagnosis of visceroptosis and appendicitis, and a statement which he makes gives a possible clue to some of the unenviable results he records. He says:—

> "In the series of cases which form the basis of this paper, I have accurate records in 127 patients of the right iliac physical findings from one to five years, or, in a few cases, even longer, after the appendectomies had been performed. In 78 cases the incision had been made in the right iliac region; in 49 cases the incision was made in the median line. Of the 127 patients, 55, or 43 per cent., still had definite tenderness at McBurney's point quite as marked as we ordinarily see in unoperated patients. It is astonishing to learn that persisting right iliac tenderness was even more common in the patients with a median incision than in those with a right-sided incision; 24 out of 49, or nearly 50 per cent. in the median cases; 31 out of 78, or 40 per cent., in the other group. A larger series of cases may possibly somewhat modify these proportions, but it is as important as it is interesting to learn that more than 40 per cent. of patients after unsuccessful appendectomy manifest tenderness in the right iliac region. It may be that the removal of the appendix creates a right iliac tenderness which did not formerly exist. Future observations are needed on this point."

It is very probable that in many of these cases the trouble is really visceroptosis, or at any rate ptosis of the cæcum and not appendicitis at all. It is true that enteroptosis is occasionally, perhaps frequently, associated with abnormal, generally fibrotic, appendix, but the changes in the appendix are secondary, and removal of the appendix can do little, if anything, to cure such a case.

Epigastric pain is the essential fact in so-called appendix dyspepsia, but this very point may lead to another source of error—namely, the diagnosis of appendicitis while overlooking the existence of the real cause in the upper abdomen, whether it be a duodenal or gastric ulcer or a cholecystitis with or without gall-stones. Many surgeons in this country in making the relatively rare diagnosis of appendix dyspepsia open the abdomen above the umbilicus, thus securing a good view of the upper abdominal organs and avoid the risk of overlooking the real cause of the trouble. If the anæsthetic is well given there should be no difficulty in removing the appendix through such an incision. Considering the appendix more from the histopathological point of view than from the clinical, Prof. Oscar Beuttner, of Geneva, deals[2] with the indications for appendectomy in the course of gynæcological laparotomy. His observations are based on a series of 1400 laparotomies which he performed personally between the years 1907 and 1922. His conclusion is that the removal of the appendix during the course of a gynæcological laparotomy should be based on pathological signs in the organ, and that the routine removal of the appendix in every case of laparotomy is not to be recommended. He quotes with approval the words of H. Vulliet: "Let us leave the appendix in peace, even if its size or its form do not please the eye," and adds the pertinent corollary that it is surprising what a lot of rough handling the appendix will stand.

[1] Journal of the American Medical Association, vol. lxxxiii., No. 16, p. 1216.

A TENEMENT VENTURE.

AN attempt is being made to solve the slum problem in Bath on lines which deserve to be more widely known. The slum problem in Bath is, and has been for years, a particularly serious one. Several of the areas are below flood-level, all contain houses falling to pieces, insanitary, and terribly overcrowded, and there were in 1923, when this venture was started, 400 houses which were actually condemned as unfit for human habitation. The families occupying them had, however, in most cases no alternative to remaining where they were, as there was no other accommodation to be found. Realising the position a small group of Bath citizens conceived the idea of acquiring, near the slums but in a better neighbourhood, a large empty house—part of which had, in fact, been a public house—and of turning it into a number of tenements. For this purpose appeal was made for funds to purchase and reconstruct the property, and most of the needed money was obtained in smaller or larger donations. Just over a year ago the new tenants moved in, nearly all of them families with young children and all of them from badly overcrowded or insanitary dwellings. There are now eight families in the house; the rents vary from 4*s.* 6*d.* to 10*s.* per week according to number and size of rooms, and the venture is regarded as in so sound a financial position that the committee is on the look-out for another house to use in the same way. The aim throughout has been twofold: to relieve some of the congestion in the worst parts of the city and to provide homes of a decent and adequate nature for some of those who have hitherto had to live in the utmost squalor. The annual meeting of the British Medical Association, which is to take place at Bath from July 21st–24th, will have a section of Medical Sociology under the presidency of Dr. C. E. S. Flemming, of Bradford-on-Avon. We commend the Bath tenement venture to the sympathetic attention of this section.

[2] La Presse Médical, Dec. 3rd, 1924.

Annotations.

"Ne quid nimis."

WEATHER AND MORTALITY.

IN the current registration week respiratory diseases accounted in London for 520 deaths, only 56 of which occurred between the ages of 5 and 55. The age-group 0–5 claimed 325 deaths, and the age-group 55–upwards, 139 deaths. Taking the summer week of six months previous, the corresponding figures were: Total 154, 0–5 group 92, 5–55 group 20, 55–upwards 42. It has long been recognised that weather conditions obtaining in the winter months are accompanied by an increased mortality from respiratory diseases—namely, bronchitis and pneumonia. Thirty years ago the late Dr. James B. Russell, of Glasgow, in his treatise on "The Evolution of the Function of Public Health Administration," wrote a strong condemnation of smoke and its ill-effects, and concluded that a high pulmonary mortality was caused by the combination of fog and low temperature. Proof, however, of the exact part played by the several meteorological factors which might be concerned in a high mortality has only recently been forthcoming, and for this our thanks are due to the statistical method, and in particular to two papers recently issued by the Statistical Department of the National Institute for Medical Research. In the first of these, which appeared in our own columns,[1] Mr. W. T. Russell dealt with the influence of fog on mortality from respiratory diseases among children (0–5 years) and adults (55 years and upwards) in the boroughs of Islington and St. Pancras in each week from October to March for 27 years beginning with 1870; the analysis was confined to these age-groups, as their mortality from respiratory diseases embraces 70 per cent. of the total deaths from these diseases. He found that the trend of deaths among children was altogether different from that among adults. The graph of the former starts from a minimum in October and reaches its maximum in the last week of November, and then falls to what is practically a fixed level for the remaining weeks. On the other hand, the curve for adults like that for children starts at a minimum, but goes on increasing with the exception of a very slight depression in the fourth week of December, and attains its maximum in the first or second week of January. It was observed that the period of maximum fog did not coincide with the maximum of deaths. It remained to investigate if the fog required the conjunction of some other meteorological factor; rainfall had no influence, but it was found that if the prevalence of fog was associated with a low temperature and frost, then the respiratory death-rate was influenced very considerably in adults; this effect was not evident in the case of children. Dr. M. Young's paper[2] helps us in the case of the children. He deals very fully with the influence of monthly and weekly temperatures (mean and minimum), of monthly and weekly relative humidity, and of monthly and weekly mean rainfall upon the mortality from respiratory diseases in children under 5 years, for a period of from 40 to 50 years in the cities of London, Glasgow, Edinburgh, Aberdeen, and Dundee; he studies also the relationship between the death-rates for these diseases in the registration counties of England and Wales in the decennia 1901–10 and 1891–1900, and their mean annual temperature and mean annual rainfall. Dr. Young finds that the lower the mean temperature the greater the fatality from bronchitis alone or from bronchitis and pneumonia summed together, and also that the mortality is most intimately related to the mean temperature of the preceding week. As suggested by Dr. Leonard Hill, the cold weather probably compels children to remain indoors in stuffy, over-heated rooms, where infection is intensified and health weakened by heat stagnation, by a lowered metabolism, and by want of sunlight. Rainfall had no influence on the death-rate for respiratory diseases in children, nor had humidity except perhaps in Glasgow. Here there was some suggestion of the existence of a direct association—the moister the atmosphere the higher the death-rate from bronchitis.

[1] THE LANCET, 1924, ii., 335.
[2] Journal of Hygiene, 1924, xxiii., 151.

COST OF SANATORIUM TREATMENT.

THE Ministry of Health has issued its second annual analysis of the costs of treatment at a large number of sanatoria and other residential institutions for tuberculosis, and thereby does undoubted service to the economical and efficient management of those institutions. The Ministry itself makes no comment on the figures beyond suggesting that in some cases further consideration might be given to the cost of provisions, the proportion of staff to beds for patients, and the advantage of keeping the beds constantly occupied, if need be, by taking patients from other authorities. Most of the factors governing costs are given in such detail that it should be easy for boards of management and medical superintendents to judge if their institutions are being managed economically.

The figures cover the year ended March 31st, 1924, and represent costs per patient per week. Some sanatoria, especially those recently built, are burdened with heavy loan charges, ranging up to 28*s.* per patient per week. If loan charges, rent, rates, taxes, and insurance are excluded, as being more or less outside the control of the management, more useful comparisons are possible with the remaining costs. Thus, if the 24 larger sanatoria, mainly for adult pulmonary cases in England, are taken, each containing 100 beds or more and each controlled by a local authority, the average cost is 39*s.* 3*d.*, which is only about 1*s.* less than the previous year. The extremes are 32*s.* 9*d.* and 49*s.*, but only five are below 36*s.*, and two over 43*s.* 6*d.*, so that on the whole there is a considerable degree of uniformity. Local conditions, such as the planning of the institution or its adaptation from other uses, often determine the standards of staffing and fuel consumption. Other four large institutions which may definitely be classed as hospitals for advanced cases cost on the average 48*s.* 7*d.*, which is the same figure as last year. It would be an advantage if the Ministry gave cost of food of patients and staff separately. At present it gives the cost of provisions for patients and staff together, divided by the number of patients. Hence, in any comparison the proportion of staff to patients has to be taken into account. The average for the larger sanatoria is 1 nurse to 6¼ beds occupied. The wide range, 1 to 5 to 1 to 12, suggests that standards of staffing are far from uniform. On the basis stated, costs of food average 14*s.* 7*d.*, in few cases being over 16*s.* or less than 13*s.* The lowest figure is 10*s.* 11*d.*, which in a large institution with one nurse for every five patients can scarcely be correct. A figure of 14*s.* 7*d.* would correspond approximately with a cost of 11*s.* 3*d.* per week for a patient's food alone. In the smaller sanatoria belonging to local authorities, and in sanatoria belonging to voluntary bodies, the average total cost is 5*s.* or 6*s.* higher than for the large sanatoria, and in these the range of costs is considerably wider. Cost of food is generally higher, ranging in one institution up to 27*s.* 7*d.* in 1923. It is clear that great economy is possible in such a case. In institutions for children the cost of food ranges ordinarily from 8*s.* to 10*s.* From the table it is possible also to compare the average salaries paid to the nursing staffs of the different institutions. In several the average ranges between £40 and £50 a year, while at the other end of the scale it rises to £80 to £85, or even in one extreme case—a very small institution—to £100. It is also interesting to find that in few sanatoria do the drugs and medical appliances cost as much as 1*s.* per patient per week.

Although there are considerable differences between institutions apparently alike in the proportions of early, intermediate, and advanced cases, it is safe to infer from the figures published that many institutions have quite different standards from the others in regard to the classification of these groups of cases. This defect will doubtless improve when the classification put forward by the Ministry becomes more widely employed.

THE POLICY OF THOROUGH IN SANATORIUM TREATMENT.

THE report of the Vejlefjord Sanatorium for 1923, the year of Prof. Saugman's death, shows that in spite of the loss of its distinguished head it continues as a pioneer institution, testing every new therapeutic measure likely to be beneficial. Of the 103 patients discharged during 1923, after an average residence of 208 days, only 12 belonged to the first stage of the disease, and as many as 72 to the third stage. And yet 74 patients were discharged as improved or "relatively" cured. A clue to these good results is to be found in the extensive use of lung collapse treatment and actinotherapy. As many as 33 patients were selected for artificial pneumothorax treatment, thoracoplasty was performed in 11 cases, thoracoscopy with cauterisation of adhesions in 13, and phrenicotomy in one case. Carbon arc-light baths were given in 27 cases, quartz mercury baths in 10, sun baths in four, and X ray treatment in six cases. Of the 66 patients who were sputum-positive on admission as many as 19 were sputum-negative on discharge. A comparison of a report like this with any typical sanatorium report 15 or 20 years ago cannot fail to show how great is the progress that has been made since the days when sanatorium treatment consisted almost exclusively of rest, graduated exercise, dieting, and exposure to inclement atmospheric conditions.

VACCINATION FOR WHOOPING-COUGH.

WRITING on the Treatment of Whooping-cough in our own columns two years ago Dr. T. Izod Bennett said[1]: "Vaccine treatment in whooping-cough, whether prophylactic or curative, is logical and harmless; it is not at present possible to say that it is invariably beneficial." Since then Dr. A. H. Meyer, Dr. M. Kristensen, and Dr. E. Sörensen have carried out extensive investigations with a whooping-cough vaccine in numerous Danish hospitals, and a report on these, as well as the experience of general practitioners in Denmark and the Faröe Islands, has now been rendered available.[2] The Danish vaccine was prepared from a 48-hour old blood-agar culture of Bordet-Gengou bacilli, of which there were about 10,000 million per cubic centimetre. It was injected subcutaneously, three injections being given at intervals of four days, the doses at each injection being 0·5, 0·7, and 1 c.cm. respectively. At one hospital intramuscular injections were given on five successive days, the doses being 0·1, 0·2, 0·4, 0·8, and 1 c.cm. respectively. The vaccine was given both as a prophylactic and as a therapeutic measure, and the results obtained were classified according as the vaccine was given as a prophylactic or not, and according as it was used in hospital or general practice. Questionnaires were addressed to 109 doctors who had been supplied with this vaccine, and replies were obtained from 69. The verdict was decidedly favourable on the whole, although not unanimous. All the practitioners in the Faröe Islands reported favourably after an experience of about 2100 cases. It was observed that the disease was less severe in children given prophylactic injections than in those who acted as controls. In some cases the vaccine did not prevent the development of the disease, which did, however, seem to run a definitely milder course, thanks to this procedure. When the vaccine was given for the first time early in the disease it also seemed to have a beneficial effect, but when the disease had fully developed there was a divergence of opinions as to the therapeutic value of the vaccine. Late in the disease it would seem to be practically useless. The authors refer to complement-fixation tests in six children, none of whom had had whooping-cough, and only three of whom had been vaccinated. As was to be expected, the three children who had not been vaccinated gave no complement fixation with whooping-cough bacilli, whereas the three vaccinated children gave complement fixation which reached its maximum eight days after the third injection. Though the authors' report is definitely favourable to this vaccine, notably when it is given as a prophylactic to children exposed to infection with whooping-cough, they admit that there may be much room for improvement in such directions as the preparation of the vaccine, its dosage, and the time of administration. There may be various types of Bordet-Gengou bacilli, and the differences in the results of vaccine treatment may partly depend on our still imperfect knowledge of these still hypothetical types. Another factor which may influence the action of this as of other vaccines is its age. Larger doses at shorter intervals might possibly increase the percentage of successes.

[1] THE LANCET, 1923, i., 198.
[2] Acta Pædiatrica, vol. iv., Fasc. 1, 1924.

TWO CENTURIES OF GUY'S HOSPITAL.

ALTHOUGH Guy's is far from being the oldest of the London hospitals, it took its place, almost from the beginning and as of right, beside its two ancient and famous predecessors. The doors of this noble foundation, which last week commemorated its two hundredth anniversary, were hardly opened before the whole of its 400 beds were occupied—an unmistakable indication of the extent of the need to the alleviation of which Thomas Guy devoted the bulk of his great fortune. On Jan. 6th, 1725, he lay dead, robbed by a dramatic stroke of fate of the crowning satisfaction of watching the fruition of a great idea. By the standards of longevity of his day he was a venerable old man—for that matter, indeed, the span of life has even now not been lengthened sufficiently for 80 to be thought of as anything but a "good old age." Length of years and abundance of opportunity must needs have had their influence upon the acquisition of the £330,000 which he accumulated, two-thirds of which he set aside for the endowment of his hospital. The bases of his fortune were curiously mixed. Founded upon the sale of Bibles it was reinforced by speculation in sailors' pay-tickets and consolidated by fortunate operations in that South Sea stock which brought ruin to so many who were less prudent or more avaricious. There is no good reason to suppose that Guy was other than an honest and honourable man, and assuredly he did not accumulate money for his personal comfort or the gratification of social ambition. His self-denial was directed in the main to the furtherance of a great act of charity the fruits of which are still with us, to say nothing of the charity which he dispensed in his life-time, and his personal service as Member of Parliament for his mother's native town of Tamworth, still dominated by that grim castle of the Marmions with which he must have been well acquainted.

The most precious faculty of ancient and virile institutions is their power of renewing their youth, of adapting themselves to new needs and novel conditions. The great London general hospitals are remarkable examples of this power and of its successful exercise. For generations past they have been faced by tasks which have steadily grown in magnitude and complexity—tasks, moreover, which have consistently outrun the material means of performing them. At the time it may well have seemed that, in the words of his epitaph, Guy's foundation in its generosity "rivalled the endowment of kings," but as men grow in numbers and knowledge and ever ask more of life, the value of money sinks. In the course of its history Guy's has had other and great

benefactors, notably William Hunt, who, a little more than a century after the death of the founder, bequeathed to it a fortune hardly inferior to that amassed by the bookseller's apprentice, yet to-day its expenditure exceeds its assured income by close upon £2000 a week. Much of this great outlay has been necessitated by the determination of the governors that the hospital shall never fail to respond to the demands upon it for the means of cure, and still more for the means of prevention. Very soon Guy's will celebrate another event not less important than the provision of the hospital itself, for this is the centenary year of the medical school which has produced an almost unrivalled series of great physicians and surgeons, has incalculably reduced the sum of human misery, and exercised a decisive influence over the development of medical education. The public is apt to forget, or to lay insufficient stress upon, the vital importance of the functions of teaching and research which the great hospitals have laid upon themselves—functions which ever grow more momentous. It is, therefore, well to emphasise the fact that of the £200,000 which the governors of Guy's Hospital are just now asking the country to provide, £40,000 are accounted for by the debt on the medical school, while £100,000 are mainly represented by the cost of providing such "modernities" as X ray, light, and massage treatment, and better accommodation for nurses. Upon the actual maintenance of the hospital there is a debt of more than £50,000. That Guy's is not in the habit of appealing for great sums is a testimony to the excellence of its management no less than to its good fortune in attracting substantial benefactions. Only once before has it begged on a large scale, chiefly by reason of the lack of income caused by agricultural depression. The £100,000 for which it then asked was obtained, and we cannot doubt that the larger sum that is now urgently necessary will be forthcoming before the close of the bi-centenary year.

A great hospital such as this is not an institution local to London. In many directions its work benefits the entire kingdom—it would, indeed, be no exaggeration to say that those benefits extend, more or less directly, far beyond the bounds of the Empire. This is especially true as regards its always growing activities in the prevention of disease and the discovery of methods of cure. Thus its appeal is as wide as the results of its work. Guy's Hospital has steadfastly renewed its youth in the past, and it is its barest due that it shall not suffer because it has interpreted its duty in so broad a spirit and with so receptive a mind.

DEVELOPMENTS IN PUBLIC HEALTH TEACHING.

WE have referred recently to some interesting developments in research which are being made by the London School of Hygiene and Tropical Medicine at the present time in coöperation with the authorities of Southern Rhodesia, with the Zoological Society in this country, and otherwise. We learn that on the teaching side of the school the question of the practicability of easy developments in the teaching of public health is being thoroughly explored. The tropical division of the school (the Old London School of Tropical Medicine, at Endsleigh Gardens, Euston), which was originally founded by the late Sir Patrick Manson, was taken over by the new body on August 1st, 1924, and the new course in parasitology for the Diploma of Public Health is being given by the heads of some of the departments of this school.

Developments in the general public health teaching undertaken by the school will, it is anticipated, be made so far as is practicable, having regard to the accommodation and financial assistance available pending the erection of the new building. In this connexion an interesting stage has been reached, as five architects—selected by the board of management in consultation with their assessor, from those architects who have had special experience in laboratory construction—have been invited to submit, in competition, designs for the building which is to occupy the site in Gower-street acquired some time ago for the purpose. It will be remembered that the funds for the provision of the new building and for its equipment are being provided by the International Health Board of the Rockefeller Foundation. We understand that the building and site will cost well over £400,000, and that the accommodation to be provided, apart from the basement, will extend to 100,000 superficial feet of floor space. A special feature of the plans will be the large amount of space devoted to the purposes of the museum. In its construction, and in its equipment, it is anticipated that the new school will realise the high hopes of those who have been concerned in its provision, and prove to be a worthy embodiment of the benefaction of the Rockefeller Foundation. We may add that the present staff of the London School of Hygiene and Tropical Medicine have every confidence in the success of the final scheme under the able directorship of Dr. Andrew Balfour. Since the institution of the new régime there has been no falling off in the number of students attending the course; on the other hand, the size of the classes is rapidly increasing. During the autumn term of 1924 a record number of over 70 post-graduates attended, while the class just assembled is much larger than what is usual at this time of the year.

The standard of knowledge necessary to acquire the D.T.M. is causing some anxiety to the teaching staff, it being necessary at the present moment to condense a large amount of instruction into a three months' course, so that consideration is now being given to the feasibility of extending the duration of the courses in order to keep pace with the rapidly extending field of tropical medicine and hygiene. One of the most important activities of the school lies in the Tropical Diseases Library; this, in conjunction with the Tropical Diseases Bureau, has now developed to a very considerable extent. It is hoped so to equip it that it may constitute the standard library for all workers in tropical medicine and hygiene in the metropolis. The library is now being utilised by a number of outside workers as well as by students attending the course.

THE TEAM SYSTEM IN PHYSICAL TRAINING.

A CIRCULAR on Physical Training (price 1*d.*), just issued by the Board of Education as a supplement to the Board's Syllabus of Physical Education (1919), marks the steady drift away from the artificiality of the Ling system to the more natural form of exercise in the shape of play with educational value. The lack of emotional content in the Ling system has always been noticeable, and the value of the herd instinct as a means of adjusting the individual to his social surroundings has been demonstrated convincingly by Sir Robert Baden Powell in the Boy Scout movement. A system of physical exercises utilising this instinct must have great educational value. The team system has been developing of recent years in English and New York schools, and has now taken a proper place in the educational curriculum for older boys and girls. The practical advantages of the system are thus summarised in the circular:—

(1) Greater variety in the work can be obtained by giving the teams different exercises (particularly recreative exercises) and games; (2) the children are able to get more practice in the exercises and to take a more active part in the games by working in smaller groups; (3) much time is saved in exercises in which only a few children can take part at once, by setting the teams to work separately; (4) it is often possible to teach some new exercise or game to one or two teams at a time, while the other teams practise what they already know, and in this way to give more attention to the instruction of individuals than is possible when the whole class is taken together; (5) the permanent grouping makes for quickness, order, and efficiency in class formations, and generally for a more flexible and rapid handling of the class; (6) the keen

rivalry that may be encouraged between the teams adds greatly to the interest of the work and stimulates proficiency.

For the egocentric young child it is of little use, as is pointed out in the circular, but with the rapid growth that precedes adolescence its value runs up to a peak. The team system in schools is bound to be of benefit to the future community not only in the physical health produced by bodily exercise, but also in the mental health which is an indirect result of striving after a well-established aim.

THE HONOURS OF A SURGEON.

THE memory of Joseph Lister is being kept green. Two years ago the Canadian Medical Association decided to have an address in his honour at every third annual meeting. The committee appointed for the purpose chose Dr. John Stewart to deliver the first oration, and we have just received a reprint of this admirable address.[1] It was a happy choice, for Dr. Stewart was one of Lister's dressers and also a personal and life-long friend. The oration gives an account of Lister's life and work which may be commended to such, if any there be, who are ignorant of the marvellous change which took place in the theory and practice of surgery owing to Lister's labours and his intuition in grasping the meaning of Pasteur's researches. Lister became a Fellow of the Royal Society in 1860 and was its President from 1895-97. We cannot recollect if there is any living surgeon, except Sir Watson Cheyne, who holds the Fellowship in right of his position as a pioneer in surgery, a fact which suggests the inquiry whether the remarkable qualities which lead to success in a surgeon's career may not sometimes obscure his scientific attainments in the eyes of the Council of the Royal Society. During mid-Victorian days a number of surgeons were Fellows. In Lister's case the scientific recognition long preceded his popular acceptance. We are glad to note that Sir Rickman Godlee's life of Lord Lister has reached a third edition,[2] even though, as we learn from the preface, there is little difference between this edition and the two former ones. The new matter includes a new portrait and facsimile of an autograph letter, together with a postscript containing a short summary of the present method of treating wounds, including experience gained in the late war. The most noticeable remark concerns catgut ligatures, of which Sir Rickman Godlee says: "We may fairly hope that Lister's prodigious effort to discover a thoroughly satisfactory catgut ligature will ultimately lead, if it has not already led, to the production of an easily obtainable article, properly standardised as regards texture and absorbability, and beyond suspicion on the score of sterilisation." These are little additions, but all such minutiæ are welcome in a well-loved portrait.

AMBULANCES AND ACCIDENTS.

AT a recent inquest Dr. Waldo, the coroner for the City and Southwark, once more called attention to the insufficiency of the ambulance service in the County of London. In relation to its size the City is so well supplied with ambulances and stations that a call is responded to, on the average, in less than three minutes; in the area of the County Council the average is seven minutes and a half, but in the case into which Dr. Waldo was inquiring, the delay, owing to the nearest ambulance being already engaged, was 14 minutes. Obviously ten ambulance stations are utterly inadequate to the needs of an area of 115 square miles. It is true that an eleventh will be ready at the end of the present month and that two more will be opened in September, but even 13 stations bear no reasonable proportion to a need which has grown with startling rapidity. Last year the calls received by the London County Council ambulance service were 15 times as numerous as in 1915, owing to the increase of motor traffic and the perilous congestion of every great thoroughfare. The County Council being solely responsible for providing succour in street accidents, the police are unable to avail themselves of the help of the ambulances and trained officials of the Metropolitan Asylums Board or the St. John Ambulance Association. It would appear that the Asylums Board steps in only in case of sudden illness, while the St. John ambulances are reserved for street processions and special occasions. The whole question was discussed last year at a conference called by the Minister of Health, attended by representatives of the London County Council, the Metropolitan Asylums Board, the Metropolitan Police, and the Home Service Ambulance Committee of the Joint Red Cross Council. It was then decided that all street accident cases within the area should be dealt with by the County Council and the City of London Ambulance Services. The view of the Home Service (Red Cross) Ambulance Committee is, we understand, that they cannot usefully coöperate in this work, though in a matter of urgency any Red Cross ambulance would be available. Whatever may have been the advantages of such a distribution of responsibility when the arrangement was made some years ago, it has clearly become archaic. Coördination is now urgently needed. Four public ambulance authorities with distinct functions and apparently responsible only to themselves are hardly suggestive of comprehensive and business-like organisation. The organisation is, however, defective mainly because of the heavy pressure that has been applied to it with little warning—last year the ten County Council ambulance stations dealt with more than 30,000 calls. The provision of a larger number would, no doubt, be expensive; but nothing is so costly as avoidable suffering and unnecessary loss of life.

[1] The First Listerian Oration of the Lister Memorial Club of the Canadian Medical Association. By John Stewart, M.D. Edin. Montreal: Canadian Medical Association Journal. 1924. Pp. 33. 50 cents.

[2] Lord Lister. By Sir Rickman John Godlee, Bt., K.C.V.O., F.R.C.S. Third edition, revised. Oxford: At the Clarendon Press. 1924. Pp. 686. 21s.

The Services.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. W. F. Ellis is placed on the half pay list on account of ill-health.

The undermentioned Majs. to be Lt.-Cols: Bt. Lt.-Col. H. V. Bagshawe, vice Lt.-Col. W. F. Ellis, to half pay. R. J. Franklin, vice Lt.-Col. H. S. Anderson, to ret. pay.

TERRITORIAL ARMY.

Capt. J. F. Edmiston to be Maj.

Capt. H. A. Lucas resigns his commn. and is granted the rank of Major.

ROYAL AIR FORCE.

Flight Lt. J. Speak (Capt. Dental Surgeon, General List, Army) relinquishes his temporary commission on resigning his commission in the Army.

INDIAN MEDICAL SERVICE.

The King has approved the promotion of Lt.-Col. R. W. Knox to Colonel.

THE LATE DR. DOUGLAS HOLROYDE.—Douglas Holroyde, M.A., M.B., Ch.B. Camb., who was formerly in practice in Barnsley, died on Jan. 3rd at Orrest Foot, Windermere, aged 48, after a long illness. He was the third son of Mr. Alfred Holroyde, of Halifax, and a brother of Dr. Gerald M. C. Holroyde, of Windermere. After his undergraduate career at Cambridge, he became M.A. in 1903, and pursued his medical studies at Cambridge, Leeds, and Dublin, graduating at Cambridge as M.B. in 1908. At Cambridge he was an Exhibitioner of Trinity College. In his younger days he was an ardent rock climber. Up to the time of his illness he was an honorary surgeon at Beckett Hospital, Barnsley, and had previously held the posts of house physician at the Leeds General Infirmary and resident medical officer at the Sanatorium for Consumption, Leeds.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CV.—BURNS AND SCALDS.

BURNS and scalds are injuries with which almost every practitioner may have to deal, and which offer him an exceptional opportunity both for the immediate relief of his patient and for the prevention of subsequent disfigurement or deformity. Yet there are few conditions in which opinions are so varied as to the best methods of treatment, perhaps one indication of the immense importance of individual attention in these cases.

In an extensive burn the first consideration is undoubtedly shock, which may be very severe, and depends on the extent of the surface involved rather than upon the depth of the lesions. If one half of the surface of the body is involved the injury will certainly be fatal, but a much smaller burn over the abdomen or thorax may have a similar result. The pain and shock are best combated by a substantial injection of morphia, varying from gr. 1/12 in an infant to gr. ¼ or even gr. ½ in an adult. This has been for many years the routine treatment in my wards, and I consider the idea that morphia should not be given to children under these circumstances to be entirely without foundation. If shock is severe immersion in a warm bath brings great relief, especially in the case of a child; the water should be rendered slightly alkaline by the addition of a handful of sodium carbonate in the form of bath salts or washing soda. No attempt should be made to remove the clothes, which can later on be cut off in the bath. A hot rectal saline infusion containing brandy may be given with great advantage.

Local Applications other than Paraffin Wax.

The essentials of a satisfactory local application are that it should be protective, painless, easily obtained, easily changed, and if possible mildly antiseptic.

Small burns, where the skin is not broken, may be dressed with gauze or other soft material soaked in a 10 per cent. solution of carbonate of soda (washing soda); a compress so made will give considerable relief to the pain, which is often especially severe in those parts which show only an erythema. Where the skin is broken a weaker solution should be used. In a limb Bier's method of passive congestion applied by means of a thin rubber bandage may give great relief, the bandage being applied high up the limb and with only just enough tension to obstruct the veins. Later on an ointment composed of equal parts of zinc ointment and castor oil may be used.

For *larger burns* it may first be necessary to clean up the surface, and this must be done under a general anæsthetic. But even under anæsthesia the procedure must be carried out with the utmost gentleness, and it is far better to leave the surface as it is than by rough handling to increase shock and destroy tissues which might otherwise survive. So far as is possible, the whole surface should be thoroughly cleansed with soap and water and then with 1/1000 perchloride of mercury, which is finally washed off with warm sterile water. The perchloride forms a coagulated layer on the raw surface and to some extent inhibits pain. Carbolic must not be used as it is too readily absorbed. Loose skin should be cut away, but blisters should only be punctured and the cuticle left for protection.

In my opinion, the best permanent dressing for the larger burns is paraffin wax, which will be described later. If this is not available, wet dressings may be used soaked in calamine lotion, or lead lotion to which 30 per cent. of alcohol may be added; or the area may be covered with strips of lint soaked in parolein or covered with the castor oil and zinc ointment already mentioned, a method especially applicable to burns of the face. Moist dressings should be removed when necessary by immersion.

If the limb, or indeed the patient, can be kept continuously in a *warm alkaline bath*, nothing else can compare with this for comfort and rapidity of healing. It is not very difficult to keep children immersed in a bath, at least during the day, and in extensive burns of the body it is well worth while. As the patient floats in the water the injured surfaces are saved from all contact, perfect drainage is established, local hyperæmia is induced, the body heat is preserved, there are no dressings, and there is no pain. If an air ring of suitable size can be obtained and slipped round the body under the arms it furnishes an excellent means of support.

Picric acid has been very largely used and recommended as a dressing, but the danger of poisoning even with weak solutions is so considerable that we have given up its use. Picric acid in itself possesses only very weak powers as a disinfectant, and a weak solution of iodine would be far more potent if any such action is required. To some individuals picric acid is intensely toxic, its mere application to the uninjured skin producing serious results.

Paraffin Wax.

Of all local dressings paraffin wax, when it can be applied, is by far the best. It must melt at about 50° C., and it may usefully be combined with mild antiseptics. Of the many compounds on the market the original ambrine is as good as any. The following was widely used during the war as No. 7 paraffin: resorcin, 1 part; eucalyptus oil, 2 parts; olive oil, 5 parts; soft paraffin, 25 parts; hard paraffin, 67 parts. This should melt at 48° C. and will be found very satisfactory. It should be melted over a water bath and may be applied with a soft brush or with a spray. The burnt area should first be cleaned and dried, best of all with a stream of warm air. It is then covered with a layer of the wax, over which a very thin film of cotton-wool is applied. This in turn is covered with wax, so that the whole is converted into a thin protective shell, which does not adhere to the raw areas. Any discharge can readily break its way through cracks in the wax envelope. The whole is surrounded by a bulky layer of wool. Simple though it is, the method requires a certain degree of skill, and unless a special appliance is used it is not very easy to apply the wax at just the right temperature. I recently devised the following method which will be found to have several advantages. Strips of ribbon gauze, of narrow bandage, or of thin soft paper about an inch wide and 12 inches long are prepared. Holding a strip by its two ends it is run through the melted wax. The strip is now held for an instant over the area to be covered, until the edges are seen to whiten, when it is at exactly the correct temperature and is immediately applied around the limb or over the area. The strips are applied to the limb in series, exactly as if it were being strapped. They furnish complete protection and afford considerable support. By perforating the strips, or by leaving narrow gaps, room can be allowed for the escape of discharge. The burning of the patient with hot wax is absolutely impossible. One great advantage of a wax dressing is the time for which it may be left undisturbed. In many cases it may be left in place for a week, and at the end of that time it can be changed with great facility, for it will not adhere either to skin or to granulations. If the wound is very dirty, the wax dressing may be changed every day with very little inconvenience to the patient, the exposed surface being cleansed with peroxide of hydrogen and dried before a fresh layer of wax is applied.

Avoidance of Exposure.

Whatever method of dressing is adopted it is most essential that bandages should be applied very loosely. There may be considerable swelling of a burnt limb, and in any case any pressure on a burnt area is intolerable. It has been well said that in these

cases a neat bandage is the sign of a bad surgeon. It is equally important that in extensive burns no attempt should be made to change the whole dressing on one occasion, and the utmost care must be taken to reduce exposure to the absolute minimum in doing what dressing may be necessary. To expose the whole of a large burnt area on the body at one time is not merely bad surgery. It is criminal.

Prevention of Deformity from Contractures.

In certain areas great care is required to prevent subsequent deformity from contractures. This is especially the case in the neck, in the neighbourhood of joints, on the palmar surface of the wrist and hand, and in the calf. Such support must be provided as will keep the burnt area extended, and in some cases it may be better to fix the parts in a plaster case with an opening over the denuded area. When the skin all round the joint has been destroyed the position must be varied from time to time so as to maintain a full range of movement in all directions. Unless these precautions are taken contractures will form which are exceedingly difficult to correct. During the second week sloughs will separate and the area will commence to granulate. In this stage a peroxide spray is invaluable in assisting the separation of sloughs, washing away discharge, and combating sepsis. An occasional boric fomentation may help to clear things up. As the granulations become cleaner a compress of lint soaked in equal parts of red lotion and glycerine will be found to check exuberant granulations and to stimulate epithelial growth. The lint should be cut exactly to fit the granulating area, and it should be covered with a layer of rubber tissue or oiled silk cut a little smaller than itself so as to allow free escape to any discharge. The whole may be covered with a gauze dressing.

Grafts.—As soon as clean granulations have formed they should be covered with Thiersch grafts, as only by the provision of an epithelial covering can contractures be permanently prevented. The grafts will be more certain to take if gentle pressure can be applied to their surface, and for this we have found tinsel dress trimming most effective. It is a very fine elastic wire gauze, sold in large sheets and quite inexpensive. It is wrapped round the limb as a sleeve, which is stitched up along the side of the limb opposite to the grafts. Over it a dressing of gauze soaked in equal parts of red lotion and glycerine may be applied. After ten days the tinsel is removed, bringing with it a layer of dead cuticle, but leaving firm and healthy grafts behind, which will rapidly spread to cover the whole area.

Conclusion.

The successful treatment of a severe burn demands a degree of individual attention and of unremitting vigilance not always realised. In this way alone can severe contractures and terrible disfigurements be avoided, but the fact that they can be so avoided is a full recompense for the labour involved. Much can be done by massage, by ionisation, by very cautious X ray therapy to soften and remove scar tissue, but in preventing or at least limiting the formation of these scars the surgeon who first treats the case has an opportunity which will never recur.

H. S. SOUTTAR, F.R.C.S. Eng.,
Surgeon (with Charge of Out-patients), London Hospital.

ROYAL SOCIETY OF ARTS.—Among the meetings of the society to be held between January and March, in John-street, Adelphi, London, W.C., the following should prove of interest to the medical profession: Mr. V. E. Pullen, Director of the Radiological Research Department, Woolwich, will deliver three Cantor Lectures entitled "Radiological Research, a History," on Mondays, Jan. 19th and 26th, and Feb. 2nd, at 8 P.M. Dr. J. A. Owens, Superintendent of the Advisory Committee on Atmospheric Pollution, Air Ministry, will speak on Modern Atmospheric Conditions, on Wednesday, Feb. 18th, at 8 P.M.

Special Articles.

A VISIT TO CULION LEPER COLONY, PHILIPPINE ISLANDS.

BY A. R. J. DOUGLAS, M.D., B.S. LOND., F.R.C.S. ENG.,
CHIEF MEDICAL OFFICER, BURMA RAILWAYS, RANGOON.

I.

OWING to the formation of the British Empire Leprosy Relief Association with Sir Leonard Rogers as medical secretary, and the prospect of funds being available for a considerable expansion of the present treatment of leprosy in India and Burma, the writer of this article, who has been on the committee of the Rangoon Leper Asylum for nearly 20 years, decided to visit the Philippine Islands, where the Government are carrying on by far the largest work on the segregation and treatment of leprosy in the world at a cost of over £100,000 per annum. The following brief account is intended to draw the attention of those interested in leprosy to the very large and valuable scientific work being carried on there. No claim is made to any originality, the writer having endeavoured by making use of articles published and unpublished, freely placed at his disposal, to present the methods being carried out and the views held by the medical staff.

The Culion Leper Colony.[1]

The space at my disposal does not allow me to deal with the questions of segregation and treatment in the way that they require. The Culion Leper Colony is an interesting institution, and in many respects unique. For the study of leprosy and its treatment it offers the most unusual opportunities. The largest well-organised leprosarium in the world, it contains in large numbers all types of the disease, and all degrees of advancement, except, of course, the earliest. The inmates are fairly amenable to reason, and little difficulty is experienced in obtaining adequate clinical material for any work desired. In spite of these facts the colony has not in the 17 years of its existence become widely known, and it is seldom referred to when leprosy work is discussed. This is undoubtedly due to the fact that until very recently it has served chiefly as an isolation colony.

With the access of interest in the treatment of this disease resulting from the reports of Rogers and co-workers in India, and, subsequently, those of Hollman and Dean and other Hawaiian workers, the desirability of extending modern treatment to the Culion inmates and of utilising the material for study was brought to the realisation of the authorities, and in 1921 provision was secured for starting such work on a small scale. The very keen and active interest of Governor-General Wood resulted early in 1922, a few months after its inauguration, in the expansion of this work to a more adequate scope. The establishment of a colony for the systematic segregation of lepers was started in 1901, and eventually Culion, on account of its water-supply and other advantages, was selected. Construction work at the site finally selected did not commence until 1905, a delay in part due, it is said, to conflicting opinions as to whether segregation would exterminate the disease. In 1906 about 500 lepers were transferred to the island.

The Present Colony.—A brief statement of the general features is necessary for any understanding of the conditions under which the work is being carried on. Culion Island is very irregular, measuring roughly 11½ miles from north to south, and 19 miles

[1] H. W. Wade and Jose Avellana Basa: Amer. Jour. Trop. Med., vol. iii., No. 5.

in its longest diameter. It has a total area of 15,059 miles, and lies about 200 miles to the south and west of Manila. The colony is everywhere surrounded by vistas of unusual beauty. The conditions of climate are very much the same as in Rangoon—that is to say, there is a rainfall of about 100 inches during the rains, which last four or five months. The temperature rises up to about 98° F. in the hottest time of the year. The colony is for the most part a nipa-roofed Philippine town of 5000 inhabitants, most orderly and clean, and with its water system, electric light, and ice plants. The institution comprises the non-leper staff headquarters, Balala, and the colony proper, some 600 yards away. The total area covered by the colony proper is estimated to be about 40 acres, and on this there are over 600 houses of lepers, and all of the Government buildings. The

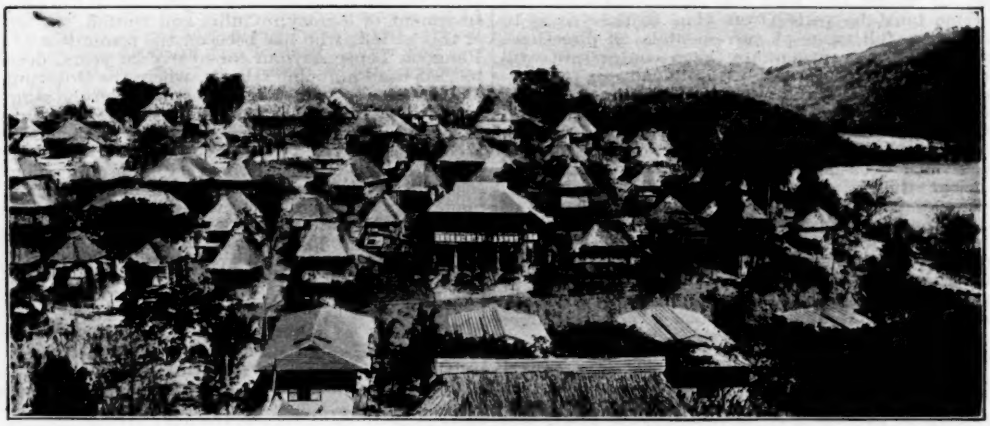


FIG. 1.—Panorama showing view of part of the leper colony.

administrative centre of the colony is Colony Hall, with the court-house of the chief of the colony and the Government store and colony post-office on the ground floor. The present chief of the colony is Dr. Jose Avellana Basa, who carries on the government of this fair-sized town, in part through and with the aid of the Advisory Board, an elective body of which he is ex officio the head.

The staffs of the general kitchen, the Government store, the colony branch of the post-office, the public works department, the sanitary department, the court, the land, and the orchestra are all lepers. Most of the routine nursing and all of the service work of the hospitals and clerics is done by leper employees. The spiritual welfare is largely in the hands of two priests. The Protestant inmates, who are in a minority, are aided by a missionary and his wife. This work is supported largely by the American Mission to Lepers. For the amusement of the inmates some little provision is made. Cinematograph shows are given at intervals; a string orchestra of lepers are paid monthly wages to play in the main plaza once a week; cock-fighting, a national sport, is permitted on Sundays and holidays, and at intervals the lepers stage fairly successful performances which appear to be much appreciated. For the most part the inmates lead very quiet, uneventful lives, finding such entertainment as they may in very little things.

Segregation.[2]

The question of segregation is a most difficult one, and to this day the most diverse and strongest views are held by scientific men who have closely studied the question personally. Leprosy is admittedly of low infectiousness, and compulsory segregation is not used in dealing with other diseases of comparable type. Yet the right of the State to apply this method is maintained. That it is justified in doing so is held in view of the general attitude of the public, which is caused largely by erroneous ideas of its infectiousness, its relative incurability (at least by the older methods), and the peculiarly repulsive nature of the lesions in the advanced stages. It is further justified because segregation is the only known practicable method of control in endemic regions, and because of the probable feasibility of eradicating it entirely by this method.

Method of Segregation.—It is overwhelmingly the opinion that in a country where the disease does not tend to become endemic rigorous segregation is not necessary. Norway's system of segregation, instituted by Hanson, in which some cases, particularly of the cutaneous type, are kept in asylums, while others, chiefly of the neural type, are allowed to live under specified conditions at home, has apparently proved successful, but to assert that the Norwegian system would be effective in a radically different environment would be an inaccurate assumption. It is very likely that conditions, such as mode of living, personal hygiene and general sanitation, economic status, nutrition, and perhaps even race, and particularly climatic conditions, are determining factors of the activity of the disease in a country. It is open to some doubt whether the Norwegian system would be effective in Hawaii, the Philippines, and many other places. This view is endorsed by Sir L. Rogers.[3]

For such regions compulsory segregation in special institutions is probably the only practicable method. If there is created an antagonistic feeling among the people, lepers will hide as long as possible and so perpetuate the disease.

Albert[4] believes that the Culion figures showed compulsory segregation to have failed in the Philippines, but his figures do not warrant the final conclusion drawn. Heiser estimates that before segregation, over a thousand new cases occurred annually, practically twice as many as the average for the past few years; whether the admissions will decline during the next 10 years or not, it is certain the results have been disappointing to those who expected a rapid diminution or total discontinuance of new cases. It was believed that after a district was once freed of known lepers few cases should occur thereafter. It is said that at the outset of the campaign

[2] An unpublished article on Leper Segregation. By H. W. Wade, M.D., Culion.

[3] L. Rogers: Trans. Roy. Soc. Trop. Med. and Hyg., 1923, xvi., 440.

[4] J. Albert: Jour. P.I. Med. Assoc., 1921, i., 133.

10 years was estimated to be sufficient to suppress the disease, and this statement has now sometimes been quoted as an argument that the system followed has failed. If there is no reservoir of infection other than human cases, it is obvious that thorough segregation will eliminate the disease.

It is 18 years since active work was begun at Culion, and certainly 10 or 12 since all previously existing cases known to the authorities were removed from most districts. It would appear that there has been a sufficient residuum of unsegregated cases to perpetuate the disease. This could hardly be otherwise.

As regards segregation for leprosy, the attitude of the people is usually not complacent, and cases must be numerous to make their isolation be considered impracticable, though in heavily infected countries like India it will undoubtedly be necessary to depend largely on education to limit the disease, as in the case of tuberculosis. Total suppression of the disease by segregation is believed to be possible, though our ideas as to the conditions that will make thorough segregation possible are being modified.

The method of transmission is unknown, but the consensus of opinion is that it is due to intimate personal contact with a leper. The nature of its ravages is a most potent factor in the general attitude. Segregation makes it possible to apply intensive modern treatment, but it is difficult to establish the right of the State to compel people to take prescribed medicines against their wills; even in leper asylums the consent and coöperation of the inmates are necessary. One important justification for segregation, though it does not appeal to the average leper, is the fact that it furnishes the best opportunity for research on the disease and its treatment.

Segregation in the Philippines.—This was one of the things which attracted the writer to visit the Philippines, and he cannot admire enough this gigantic and costly experiment. The position of affairs appears to be very much the same as in Hawaii in its earlier days. Owing to the fear of being sent to Culion there are probably a large number of unsegregated cases in the Philippines. The writer has been told by one recognised authority that he believes the number of lepers in the Philippines to be at least 10,000. Only about 6000 of these are segregated, 5300 at Culion. Recently, with the success of the new treatment, a number of volunteers have appeared, but many only on condition they should not be sent to Culion. A strong attempt is being made by means of statistics to show that segregation at Culion has failed, and to substitute a system of smaller leprosaria about the Archipelago. In support of this is Dr. Wade's view that intensive treatment is better carried out in a treatment station (asylum), where patients can be kept under closer observation than in a colony. It seems too early yet to lay much stress on statistics. Probably the figures do not indicate any definite reduction of leprosy in the Philippines.

As Dr. Wade says in his unpublished paper quoted above:—

> "Conditions of segregation must be such as to cause the leper to be willing to undergo it for the chance of being cured. Segregation to be effective must be accomplished by attraction, not by compulsion alone. . . . The antagonists of Culion believe that the principal drawback is that it is in an isolated island, very difficult of access to friends of the inmates, and with inadequate provision for bringing visitors. To the Filipino the attraction of home and the family circle is very strong. On the whole the sorrow of separation is, perhaps, a greater deterrent than fear of the colony. If, therefore, several properly organised colonies were established, so situated that the inmates could be visited by their friends, the difficulties would be very much diminished."

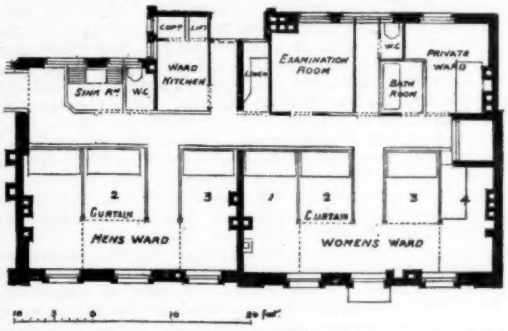
In the sequel the question of treatment at Culion Leper Colony will be dealt with.

Under this heading will be included accounts of (1) the chemical section, (2) the pathological section, and (3) the actual treatment as carried out in the clinics and hospital wards.

NON-PAYING BEDS AT THE RADIUM INSTITUTE.

THE technique of radium therapy has altered considerably since the days when the metal or its salts were first applied externally to new growths in the attempt to destroy them without damage to normal tissue. In order to carry out the modern methods of burying in the growth tubes of radium, in the form of headless nails tethered by aseptic thread, the coöperation of the surgeon must be enlisted. More elaborate technique has brought with it the need also of operating theatres and of beds in establishments where radium therapy is practised.

The Radium Institute at Riding House-street, Portland-place, London, W. 1, has gradually expanded to three times its original size during the 14 years of its existence; for 12 of those years out-patients alone were received, but it became clear a few years ago that beds were needed, and in October, 1922, seven comfortable rooms were set aside for private patients, together with an operating theatre, anæsthetising and sterilising rooms. The patients occupying these rooms pay a nursing-home charge of £1 11s. 6d. a night in addition to the consultation and treatment fee; their stay varies from one or two nights to about a week. These beds did not, however, meet the needs of necessitous patients, and arrangements have now been made to accommodate three men and four women in non-paying wards divided into cubicles. Adjoining these wards are a special operating theatre, a service kitchen and pantry, bathroom and lavatories. The plan (see figure) shows the arrangement whereby



The new beds for necessitous patients. The room designated "examination room" on the plan has been equipped as an operating theatre, and the "private ward" serves as a duty room.

privacy has been secured without the use of screens; but it can hardly convey the pleasant and cheerful outlook in the cubicles as well as in the private rooms.

No charge is to be made to necessitous patients for treatment, operation and nursing, but patients will be expected, when possible, to contribute to the actual cost of their maintenance whilst in the Radium Institute. The regulations laid down by the governing body of the Institute provide that no patient shall be received for treatment except with the knowledge and consent of his or her medical adviser, who is requested to fill in and sign the prescribed form of certificate. The particulars of the patient's case are then considered by the medical staff, and if the case appear to be a suitable one for treatment, a dated admission order is sent to the patient. No patient can be admitted unless these formalities are complied with.

The Radium Institute was founded, equipped, and endowed by the late Sir Ernest Cassel and by Lord Iveagh, who is now its President. The executive committee consists of Sir Anthony A. Bowlby, the Chairman, Lord Rayleigh, F.R.S., Sir Felix Cassel, Mr. Walter Guinness, Sir George Blacker, Sir William H. Bragg, F.R.S., Sir Humphry D. Rolleston, and Sir

Joseph J. Thomson, F.R.S. The honorary consulting staff includes Dr. Herbert French, Dr. Cuthbert Lockyer, Prof. C. A. Pannett, Dr. J. H. Sequeira, Dr. Herbert J. Shirley, Mr. W. T. Holmes Spicer, Mr. Herbert Tilley, and Sir J. W. Thomson-Walker. Mr. W. Lester S. Alton, F.I.C., is director of the chemico-physical laboratory, and Dr. J. C. Mottram of the pathological research laboratory. The Institute possesses 6 g. of radium bromide and the latest form of emanation plant; examination rooms, X ray room (for diagnosis only), photographic studio, chemical, physical, and pathological research laboratories, carpenter's and engineer's shops, are all well equipped, and the rooms in which out-patient treatment is given are as warm and comfortable as the bedrooms. Indeed, throughout the Institute it is obvious that the convenience of the patient is the first consideration. Every patient before treatment is seen by Mr. Hayward Pinch, the medical superintendent, or one of his colleagues, Dr. Philip Gosse and Dr. Oskar Teichman, but this does not entail hours of dreary waiting, since all interviews and all treatments are by appointment. Since patients with operable tumours are strongly urged to consult surgeons, it follows that many of the sufferers from malignant disease who are accepted for treatment are in an advanced stage. Patients afflicted either with cancer or with unsightly if benign lesions, such as keloid, often suffer much from causes only indirectly connected with their pathological condition unless very tactfully handled. In order to secure the most judicious nursing no probationers are employed. The 14 nurses, including four men nurses, are all fully trained, and since a large proportion of the cases treated are gynæcological, a C.M.B. certificate is required of the women nurses. Practitioners who have not had the privilege of going round the Institute may safely reassure any patients who show reluctance to expose themselves to treatment by new persons in a strange place, for the place is home-like and the people are kind as well as skilful. Since the opening of this Institute some 10,200 patients have been treated within its walls, and 4500 have been treated at various hospitals, infirmaries, and nursing homes in all parts of the United Kingdom with emanation apparatus, supplied with the fullest instructions as to technique and exposures, to the surgeons or practitioners in charge of these cases.

We congratulate the Institute on its new enterprise and rejoice that whatever benefits radium can confer in prolongation of life and alleviation of symptoms may now be available for a larger number of patients.

TESTIMONIAL TO PROF. RUTHERFORD MORISON.

WE are glad to announce that a movement has been started among members of the medical profession in the north of England to commemorate the work of Emeritus Professor Rutherford Morison, of Newcastle, one of the most active and original leaders of surgical thought of our time, at present consulting surgeon to the Royal Victoria Hospital in that city. On Dec. 16th a largely attended meeting representative of all branches of the medical profession was held at Newcastle, at which it was unanimously decided to issue an appeal to the profession for subscriptions to present Prof. Morison with his portrait in oils, and, after defraying the cost of the portrait, to devote the balance either to the formation of a medical library fund or the establishment of a scholarship or a fellowship in research, or such other similar objects as Prof. Morison approves.

James Rutherford Morison, a son of John Morison, M.D., was born in Hutton Henry, County Durham, in 1853. He received his early education privately and began his medical studies in Birmingham, later proceeding to Edinburgh and Vienna. In 1874 he became L.R.C.S. Edin. and the following year graduated M.B. at the University. In 1879 he gained the Edinburgh fellowship of surgery, and in 1890 the F.R.C.S. Eng. He began his professional life as house surgeon at Edinburgh Royal Infirmary and resident surgeon at the Cowgate Dispensary; then returning to England he settled in Newcastle, where he was appointed assistant surgeon to the Newcastle Royal Infirmary. From that auspicious beginning his work as a surgeon has grown. On the academic side he became lecturer on surgery at Durham University, and having filled the professorial chair for many years, now holds the title of emeritus professor. He is also examiner in surgery to the Universities of Liverpool and Birmingham. An hon. staff surgeon to the R.N. Reserve before the late war, he was appointed senior surgeon to the Northumberland War Hospital during hostilities and later senior surgeon to the War Pensions Hospital. His contribution to war surgery, with which his name will always be associated, was the treatment of war wounds by iodoform, bismuth, and paraffin paste—bipp—a method which achieved remarkable success.

Prof. Morison has made many valuable contributions to surgical literature both in standard medical text-books and in the columns of medical journals. His name is a familiar one on THE LANCET files. He published an introduction to surgery in 1910, an extremely suggestive work designed to supplement the standard text-books, and in 1916 appeared in collected form his "Surgical Contributions from 1881 to 1916." In the large number of papers collected into two volumes we find everywhere the same acute recognition of the essential points, the same accurate appreciation of the value of theories and methods which have been recognised in Prof. Morison by all who have had the privilege of knowing him. Prof. Morison has been honoured by his alma mater with the LL.D. Edin., and Durham University has awarded him both an honorary M.A. and the D.C.L.

Formation of a General Committee.

A general committee has been formed to further the projected testimonial, and an executive committee has been appointed also. The latter consists of the following members of the medical profession :—

Prof. H. Brunton Angus (Chairman), Newcastle; Dr. J. Anderson, Blyth; Dr. P. V. Anderson, Bishop Auckland; Dr. J. S. Arkle, Newcastle; Dr. R. A. Bolam, Newcastle; Dr. T. L. Bunting, Newcastle; Dr. J. Charles, Consett; Dr. H. B. Densham, Stockton; Dr. H. Dickie, Morpeth; Mr. W. S. Dickie, Middlesbrough; Dr. R. H. Lix, Sunderland; Dr. J. Don, Newcastle; Dr. W. Fairclough, Hexham; Dr. F. T. T. Hare, Durham; Dr. G. R. Harland, South Shields; Dr. J. Hudson, Newcastle; Dr. W. Mackenzie, Gosforth; Mr. A. M. Martin, Newcastle; Dr. Farquhar Murray, Newcastle; Dr. O. W. Ogden, Newcastle; Dr. H. C. Pearson, Darlington; Dr. Scott Purves, Alnwick; Dr. R. H. Smallwood, Gateshead; Mr. G. Grey Turner, Newcastle; Dr. Eleanor Walkinshaw-Osselton, Newcastle; Dr. J. B. Williamson, North Shields.

The following subscriptions have been received or promised to date. It is hoped to raise a sum of at least £2000.

£52 10*s*.—Mr. Hamilton Drummond, Newcastle; Mr. G. G. Turner, Newcastle; Mr. R. J. Willan, Newcastle.

£25.—Mr. A. M. Martin, Newcastle; Prof. H. Brunton Angus, Newcastle; Dr. J. W. Smith, Ryton.

£21.—Dr. R. A. Bolam, Newcastle; Dr. James Don, Newcastle; Dr. James Hudson, Newcastle; Dr. D. F. Todd, Sunderland.

£15 15*s*.—Dr. J. S. McCracken, Newcastle.

£10 10*s*.—Dr. Baigent, Northallerton; Dr. R. H. Dix, Sunderland; Dr. Forsyth, Cramlington; Dr. Fox, South Moor; Dr. Gofton, North Shields; Mr. N. Maclay, Newcastle; Dr. W. Mackenzie, Gosforth; Dr. Scott Purves, Alnwick; Dr. H. Smith, Durham.

£10.—Dr. J. T. Dunlop, Newcastle; Dr. A. Smith, Ryton.

£5 5*s*.—Dr. W. Fairclough, Hexham; Dr. H. E. Gamlen, Newcastle; Dr. T. W. Hay, Newcastle; Dr. D. W. Inglis, Hebburn; Dr. J. F. Longbotham, Middlesbrough; Dr. Moyes, Broomhill; Dr. Gavin Muir, Newcastle; Dr. James McDonald, Belford; Dr Macleod, Alnwick; Dr. Eleanor Walkinshaw-Osselton, Newcastle; Dr. H. Carden Pearson, Darlington; Dr. E. F. Pratt, London; Dr. Stanley Robson, Rowland's Gill; Dr. J. B. Williamson, North Shields; Dr. Stanley Worthington, Newcastle.

£5.—Dr. H. Dickie, Morpeth; Mr. C. D'O. Grange, Harrogate; Mr. A. S. Percival, Newcastle.

£3 3*s*.—Dr. Monica Bell, Humshaugh; Dr. J. Galloway, Low Fell; Dr. G. H. Harbottle, Gosforth; Dr. W. Jaques, Washington; Dr. E. E. Norman, Hebburn; Dr. Z. Ross, Sunderland; Dr. T. L. Wormald, Darlington.

£2 2*s*.—Dr. J. Chalmers, Sunderland; Dr. Densham, Stockton; Dr. Hubbersty, Sunderland; Dr. W. Robinson, Sunderland; Dr. W. J. Ruddock, Newcastle; Dr. Ross, Stockton.

£1 1s.—Dr. Bishop, Wylam; Dr. A. Brownlie, Redcar; Dr. J. Brydon, Stockton-on-Tees; Dr. J. Crombie, Castle Douglas; Dr. Devey, Richmond; Dr. Hall, Stockton; Dr. Bruce Low, Sunderland; Dr. S. Lyle, Stockton, Dr. C. V. Miller, Stockton; Dr. A. T. Thompson, Darlington; Dr. L. M. Weeks, Newcastle; Dr. Ethel Williams, Newcastle.

10s. 6d.—Dr. G. Irving, Stockton; Dr. T. Kirk, Stockton; Dr. Manners, Stockton.

INFECTIOUS DISEASES ABROAD.

Encephalitis Lethargica in Europe during 1924.—In view of the high incidence of encephalitis lethargica in England and Wales during 1924—namely, 5017 cases as compared with 1023 in 1923—it is surprising that there was little change in the annual incidence in other European countries. Up to the dates in 1924 for which statistics are available from the 11 European countries in which the disease is notifiable, Italy is the only country where the number of reported cases exceeded those of the previous year. The following statement gives the available figures of cases in those countries during the two years. The figures of deaths are available from only one or two countries so that at present it is not possible to compare fatality rates. In England and Wales 26 per cent. of the cases were fatal as compared with 33 per cent. in 1923.

	1923 Cases.	1924 Cases.
Norway	10	10 (to Nov. 30th).
Sweden	536	283 (to Nov. 30th).
Finland	83	35 (to Nov. 30th).
Denmark	88	77 (to Oct. 31st).
Belgium	27	20 (to Dec. 10th).
Switzerland	203	86 (to Dec. 20th).
Italy	277	591 (to Nov. 30th).
Czecho-Slovakia ..	366	82 (to Sept. 30th).
Lithuania	86	7 (to Nov. 30th).
Latvia	—	3 (to Nov. 30th).
Esthonia	12	3 (to Oct. 31st).
Russia	899	810 (to June).

Plague in the Azores.[1]—The Portuguese islands of the Azores, in the mid-Atlantic about 700 miles from the coast of Portugal and about 1500 from Liverpool, lie on the natural highway from Europe to America and on other great trade routes. From time to time since 1910 outbreaks of plague have been reported in four of the nine islands which constitute the group, but, except for approximate numbers of cases and deaths, little or no information about the outbreaks is available. The following statement gives the recorded figures in each of the last five years:—

—	1920		1921		1922		1923		1924	
	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
St. Michael Island ..	140	47	71	30	385	81	200	84	17	13
Pico Island	?	15	—	—	—	—	—	—	—	—
Fayal Island	—	—	1	—	?	5	3	—	—	—

C = Cases. D = Deaths.

A characteristic feature of the outbreaks has been the predominance of cases of pneumonic type with a high fatality and spreading from person to person by direct contact. This happened with the outbreak in the Island of Pico in 1920, in regard to which it is said that the inhabitants of the island became so alarmed that they segregated the affected families in an area surrounded by a deep trench and sharp-pointed wooden stakes. The present outbreak at or near Ponta-Delgada, the chief town and port of the Island of St. Michael, and in neighbouring parishes, is chiefly of the same type, but there are also cases of bubonic type, particularly in the districts of Arrifes and Ribeira-Grande. It appears to be a recrudescence of a small outbreak of eight fatal cases which occurred in January of last year and in which the first case was described as being of bubonic type with secondary pneumonia.

[1] See THE LANCET, Jan. 3rd, 1925, p. 43.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Trinity College, Dublin.

Regius Prof. John Mallet Purser has made a gift of £10,000 to be administered for the benefit of the School of Physic and the Schools of Experimental and Natural Science by a committee consisting of the heads of three of the scientific departments of the College. The Board of Trinity College, in gratefully accepting his most generous donation, has expressed to Prof. Purser its desire that he should associate himself with the committee in the administration of his gift and Prof. Purser has consented to do so. Prof. Purser's connexion with the teaching staff of Trinity College dates from the year 1874, when he was appointed King's Professor of the Institutes of Medicine (Physiology and Histology) by the Royal College of Physicians. He held this professorship until his resignation in 1902. Probably no man exercised a greater influence over the minds of generations of students in the school than Prof. Purser during these 28 years. He was responsible for the teaching of physiology, and was, it is believed, the first man in Ireland to give formal lectures and conduct practical classes not only in histology, but also in modern pathology. During the years that he held the King's Professorship he acted as physician to Sir Patrick Dun's Hospital. In 1917 Prof. Purser was nominated by the University Council, and appointed by the Board of Trinity College, to the Regius Professorship of Medicine, a position which he still holds. This appointment has given the greatest pleasure and satisfaction to his many former pupils. His numerous friends, not only in Dublin but all over the world, will hope that Prof. Purser for many years to come will continue to hold this high position and preside over the School of Physic in the University to whose service he has devoted his life.

Royal College of Physicians of Ireland.

At their December meeting, the President and Fellows of the Royal College of Physicians of Ireland unanimously elected Sir Humphry D. Rolleston, President of the Royal College of Physicians of London, to the Honorary Fellowship of the College. Sir Humphry Rolleston has arranged to visit Dublin early in February, and the Honorary Fellowship will be conferred on him in the College Hall on Feb. 7th. He will deliver an address on Personal Links Between the Royal Colleges of Physicians of London and of Ireland. In the evening he will be the guest of the President and Fellows at the term dinner of the College.

The Bad Weather and the Poor.

The peasantry of South and South-Western Ireland is suffering considerable hardship as the result of the recent bad weather. It has been impossible to cut and dry peats, and the prospect in consequence for the ill days that are yet to come is bleak. With the object of alleviating distress in the poorest parts of the country, a meeting is being held, under the Lady Dudley Nursing Scheme, in the Engineers' Hall, Dublin, on Friday, Jan. 16th, when it is hoped to outline some helpful plan. Lady Mayo will preside, and the Governor of the Free State and several other well-known speakers will address the meeting.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

What Is a Fresh Egg?

THIS perennial question was again raised last month in the French law-courts, and the prosecution conducted in the Tenth Chambre du Tribunal Correctionnel de la Seine of certain vendors who had passed off preserved eggs as fresh, has clarified the situation. At any rate, grocers in France now know exactly where they stand,

and what risks they run of fine and even imprisonment if they convey to their customers the impression that their eggs are straight from the hen and not straight from cold storage. In the course of this prosecution much ingenuity was shown in the definition of the term "a fresh egg." It was urged, presumably on behalf of the persons prosecuted, that an egg should be regarded as fresh when it showed no changes on transillumination, and when it could be used for all the culinary purposes for which a fresh-laid egg is fitted. This definition was criticised as being altogether too elastic: as leaving the door open to abuses, and as giving a sort of passport to the egg which, after a five or six months' sojourn in cold storage, is susceptible to rapid deterioration on its emergence therefrom. Incidentally, it should be noted that, of the million odd "fresh" eggs consumed daily in Paris, only a negligible 500 or so are laid on the same day or the day before. The definition of a fresh egg formally accepted by the Tenth Chamber was "that which has not been subjected to any process of conservation." Eggs for boiling—*les œufs coque*—must not, according to the ruling of this Court, be more than 15 days old in the summer or more than three weeks to a month in the winter. Fresh eggs—*les œufs frais*—are those which, though somewhat older, are still fit for cooking purposes without having undergone any process of conservation. Preserved eggs—*les œufs de conserve*—are those which, for a shorter or longer period, have been artificially prevented from undergoing spontaneous deterioration by being kept in storage. The persons prosecuted were condemned to 15 days' imprisonment in addition to a fine, and it is to be hoped that these disciplinary measures will prove a most effective mnemonic to traders who are apt to be forgetful of the birthdays of their wares.

The Episcope.

In my last letter I referred to the use of the kinematograph in demonstrating vivisection experiments to students. Films, of course, can also be taken of surgical operations on the human body, and are instructive, but the new apparatus now in use of the St. Louis Hospital is likely to prove of much greater value. This is the episcope, a sort of glorified epidiascope, by which the actual operation, at the time when it is being performed, is projected on to a screen in a room adjacent to the operating theatre. The part of the patient on which the surgeon is working is strongly illuminated with beams from electric light projectors, and, immediately above, but placed so as not to interfere with the surgeon, is a lens like that of a camera or magic lantern. The image is picked up, and the beam is deflected at right angles by a prism and passed through a tube to a lantern in an adjoining room where it is thrown on a screen. Students can follow every movement of the instruments guided by the surgeon's hands, and can take notes in comfort without any risk of distracting the doctors and nurses. But what is more important, next door in the operating room all is quietness and not a single unnecessary movement disturbs the air or the surgeon's sang-froid. The value of this apparatus lies in the fact that there can be no possibility of "faking" the picture, and the surgeon's mistakes are recorded along with his successes. Nevertheless, merely to watch the surgeon's manipulations is not enough. An operation theatre is a theatre in more senses than one, for in the actual presence of the living actors in the drama on the operation table there comes to the student a tenseness, a sense of responsibility that no amount of mere visual perception can ever quite replace.

Vivisection.

Reverting to the subject of vivisection, there has been a good deal of public feeling raised during the past year through the instrumentation of certain political journals with regard to animal experimentation in laboratories. In July of last year the Minister of Hygiene drew the attention of the Academy of Medicine to acts which he designated as being of useless cruelty, and he asked if it would not be possible to limit the number of laboratories and to organise some supervision of the experiments. A commission, which included Prof. Balthazard, was appointed to look into the matter. Prof. Balthazard has now reported to the Academy of Medicine that useless cruelties are never practised in our laboratories. He also points out that vivisection at the present time in no way resembles what was practised under that name in the time of Claude Bernard. Nowadays experiments are conducted in exactly similar fashion to operations on human beings, and, further, we now possess anæsthetics which abolish pain but do not nullify scientific results. On the other hand, he states it is impossible to limit the number of laboratories authorised to carry out vivisection experiments, as such a limitation would be equivalent to granting a monopoly of biological discovery to certain institutions. As regards the control of vivisection, this is already in existence, as the laboratories are under the surveillance of the deans of the medical faculties and the directors of scientific institutions. Also, it would be intolerable to permit lay strangers to be present at and criticise operations. It is to be hoped that the conclusions expressed in this report will assure the Minister and the political press that there is no occasion for misplaced excitement.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Scabies in Infants and Young Children.

Dr. Zoltán Barabás, director of the Children's Asylum in Gyula, Hungary, has used the following routine treatment in cases of scabies of infants and young children, and has had excellent results with it. The hair and nails are cut short. A warm bath is given in which the patient is immersed for some considerable time, his skin being abundantly soaped and rubbed with a soft brush, in order to remove the superficial pus-vesicles and crusts. It is advisable to add 1 per cent. lysol to the bath-water. After the bath the skin is well dried and one of the following ointments applied: Milk of sulphur, 15 g.; potassii carbonate, 10 g.; green soap, 5 g.; lard ad 100; or sulph. precipit., creta alba, oxide of zinc aa 12 g., vaseline ad 100. With infants under 6 months it is advisable to increase the quantity of the vehicle by one-third, as the ointment is likely to irritate the macerated skin. Inunctions are to be made on three to four successive days, once a day, if possible by daylight, to ensure visually that the whole body is anointed. The inunctions must be made energetically, each manipulation lasting from eight to ten minutes. Special attention must be paid to the head, ears, neck, and in general to all flexures. All pus blisters must be incised, and afterwards dressed with the above ointments.

Diet for Obstinate Constipation.

Dr. Sigmund Serb, lecturer on clinical medicine at the university, prescribes the following diet in cases of spastic constipation. Half an hour before breakfast: one tablespoonful of pure honey with three tablespoonfuls of warm water. At breakfast: besides common sugar, one teaspoonful of milk-sugar, along with plenty of butter, jam, and rye bread. Before noon: Raw and preserved fruits. Lunch: To be avoided are, kohlrabi, cabbage, radish, horse-radish, cucumber, onion, unsieved beans or peas, puddings prepared with yeast, green or over-mature cheeses. Recommended are: Carrots, and green vegetables other than the above, cooked with soup, plenty of vegetables and little meat, much salad and cooked fruits, soft cheese. Tea, as for breakfast. Dinner: Anything excepting the foods to be avoided, as enumerated above for lunch. Meat and eggs must be erased from the dinner bill-of-fare. Recommended are cooked or raw fruits, spinach, carrots, potatoes, asparagus, green beans, green peas, soft cheese, milk, yoghurt, gervais, light puddings, tarts, aspic jelly,

bacon, and as much butter as possible. In general, the keystone of this diet is the consumption of plenty of butter, at least 120–130 g. a day. Before going to bed 10–12 dried plums steamed in about 10 oz. of water to which is added one teaspoonful of milk-sugar, the whole to be passed on a sieve. Instead of white bread rye bread is always to be served. As for mineral waters, there are hundreds which are useful, provided that the carbonic acid is first driven out from them by warming the bottle.

Diathermy in the Treatment of Gonorrhœa of Women.

Dr. John Bársony, professor of obstetrics and gynæcology at the University of Budapest, writing on gonorrhœa of women, touches the question of the usefulness of diathermy in cases of exudates and pelvic cellulitis. He maintains that diathermy is a very useful auxiliary in the treatment of the gonorrhœal inflammations which sometimes defy all usual forms of therapeusis. Such are the cases where the uterus along with the tubes and the ovaries, and, chiefly, the posterior uterine ligaments are getting very tender. Such women are continually complaining of pains in the back and abdomen, and of general malaise; they envy all those who are healthy, and become embittered as to their fate. Particularly acute are these complaints during menstruation. This condition is usually termed post-gonorrhœal, but it is not. These women are still infected with gonococci, which are quiescent and are aroused periodically. In treating this condition diathermy is most effective. The heat applied in the pelvis, though not burning the tissues of the body, kills the gonococci. Improvement and even cure may be effected by a few sittings. Such cases should be sent by the practitioners to the institutions equipped with diathermy apparatus, while inflammatory swelling of the adnexa and exudates may be left under the care of the gynæcologist.

Post-Graduate Course on Dietetics.

The post-graduate courses held last year in Budapest have proved a great success. Foreigners came to attend them in unexpected numbers. The last course was held in December on the theoretical and practical study of X ray work. The first course for this year is now being held and deals with dietetics. The lectures are held in the clinics of Prof. Alexander Korányi. The course comprises theoretical lectures on the dietetics of different internal diseases, metabolism, with practical analyses, and practical exercises in the laboratory on the culinary art. The fees for the course and full board for foreigners in the guest house of the clinic amount to 50 American dollars. While such post-graduate courses are productive of good results, the great inrush of students to the medical faculty of Budapest is raising fears among medical men of the city that the profession will become overcrowded. The territory of Hungary is now only one-third the size it was before the war, yet the number of medical students at present matriculated in Budapest University is 2062. Even in pre-war days this number would have been regarded as excessive.

THE LATE DR. C. D. SHEPHERD.—Charles Dunbar Shepherd, M.R.C.S. Eng., senior consulting surgeon to the Wigan Infirmary, died at an advanced age on Jan. 8th at the house of his son at Ross-on-Wye. Dr. Shepherd for many years was a busy practitioner in the Wigan coalfield district, and was associated with the Royal Albert Edward Infirmary at Wigan ever since the institution was opened by the late King Edward, when Prince of Wales, 52 years ago. Prior to the building of the infirmary, Dr. Shepherd was for a number of years surgeon at the Wigan Dispensary. Forty years ago, owing to ill-health, he found it necessary to resign his position on the medical staff of the infirmary, and retired to Arnside where he resided for many years. On his retirement he was elected honorary consulting surgeon to the Wigan Infirmary, and at his death he was the senior consulting surgeon. Dr. Shepherd qualified in 1862 as M.R.C.S. and L.S.A., having pursued his medical studies at King's College, London, of which he was an Associate.

PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

A MEETING was held in the Thompson-Yates Laboratories of the University of Liverpool on Jan. 9th and 10th, Profs. E. E. Glynn and J. M. Beattie presiding.—W. Blair Bell (Liverpool) described the specific action of colloidal lead in causing necrosis of the fœtal placenta and consequent abortion; the effective aborting dose is about one half of the fatal dose. Copper may cause abortion due to hæmorrhage and if sufficient is given to produce this result it is generally fatal. Thallium is very little and thorium not at all toxic in reasonable doses.—A. H. Miller (Midhurst) had treated tuberculous guinea-pigs with the esters and salts of some unsaturated fatty acids found useful in leprosy but without any good result. Some of the preparations were definitely poisonous, for example, the very unsaturated Japanese sardine oil.—G. Hadfield (Bristol) narrated a case where a tourniquet was by mistake left on the leg too long; the patient died several days later with symptoms compatible with secondary shock, and post mortem extensive necrosis of the leg muscles was found.—A. F. B. Shaw and R. P. Smith (Newcastle) described five cases of Riedel's chronic thyroiditis which produces singularly hard goitres, generally causing dyspnœa and often mistaken for sarcoma. There is diffuse lymphocyte infiltration with definite lymphoid follicles and much fibrosis; the destruction of the proper parenchyma varies in different cases and in different parts of the same gland. One case had Addison's disease and the suprarenals were found to be destroyed by the same process.—J. S. Dunn and N. A. Jones (Manchester) had studied the excretion of water and urea in experimental oxalate nephritis in relation to the accumulation of urea in the blood. The two largely run parallel, and the induction of polyuria by increasing the water intake raises the excretion of urea and may substantially lower its level in the blood. The same authors, with J. H. Dible and B. A. McSwiney, had failed to find any difference in blood circulation-rate in normal and nephritic kidneys.—F. S. Fowweather (Leeds) described a hypobromite method of determining blood-urea which was good enough for clinical purposes.—G. S. Williamson (London) described the finding of colloid droplets and degenerated cells in the ventricular fluid in encephalitis lethargica, and held that the primary change was an ependymal catarrh; the familiar perivascular cell aggregates are the consequence of the anatomy of the parts.—D. F. Cappell (Glasgow) described a case of liver-cell carcinoma with many secondary deposits in the lungs, heart, brain, &c., and numerous microscopic metastases in the spleen pulp.—M. J. Stewart and A. L. Taylor (Leeds) dealt with adenomyoma of the stomach, of which they had met with five cases, one an accidental autopsy finding and four removed by operation. The thickened plaques, one or two inches across, towards the pyloric end are composed of variable mixtures of Brunner's glands, more or less differentiated, pancreas, and smooth muscle, and the condition is to be regarded as a heterotopic malformation.—J. Davidson (Edinburgh) had produced a malignant tumour with widespread metastases in a rabbit by the subcutaneous inoculation of an ethereal solution of tar; the structure was indeterminate but was apparently sarcomatous.—W. A. Alexander (Edinburgh) described a typical sacrococcygeal chordoma in a man of 64, and specimens of the same tumour were shown by A. Young and R. Muir (Glasgow), and by A. Peyron and M. J. Stewart (Leeds).—W. A. Alexander also showed a sacrococcygeal tumour from an adult female which had the structure of a capillary carcinoma, recalling some papillary kidney tumours and also the choroid plexus; it was suggested that it was either an exceptionally uniform teratoma or came from the neurenteric canal.—H. W. Crowe and W. G. MacDonald (Harrogate), in an extensive series of

observations on the relation of staphylococci of the scalp to rheumatoid arthritis, had found that a special variety of coccus was regularly agglutinated by the serum of patients with that disease and not by normal sera.—C. C. Okell, T. Dalling, and L. Pugh (London) dealt with the frequency of leptospiral jaundice in dogs in England causing a disease known as "yellows" and often confused with distemper, and showed its specific identity with the spirochætosis icterohæmorrhagicæ of men, rats, and experimental animals. Considering the widespread diffusion of the organism in rats and dogs the rarity of human infections is remarkable.—W. W. C. Topley, J. Ayrton, and E. R. Lewis (Manchester) had investigated the possible influence of bacteriophage on aertrycke infection in mice. Feeding lytic filtrates to carriers did not stop excretion of the bacilli. Feeding lytic filtrates with bacilli to normal mice did not prevent infection and the induction of the carrier state. Adding large quantities of lytic filtrates to the animals' water-supply made no difference to the progress of mouse epidemics. Feeding or vaccination with bacteriophage gives no protection againt subsequent inoculation with bacilli. No evidence was, therefore, obtained that bacteriophage had any protective or curative value.—A. D. Gardner (Oxford) described his studies of the minute details of the mode of multiplication of the branched forms of paratyphoid cholera and other bacteria.—J. W. McLeod and J. Gordon (Leeds) said that bacteria do not produce glutathione, but its reduction by them to the stage, giving a nitro-prusside reaction, was a useful measure of their reducing power which the authors related to the capacity of different kinds to produce hydrogen peroxide.—J. W. McLeod and B. Wheatley (Leeds) described experiments showing that "peptone" contained substances inhibiting bacterial growth.—M. J. Stewart (Leeds) presented an interim report of the Status Lymphaticus Committee showing, as far as the number of cases investigated allowed, that really normal healthy young persons often had large thymuses and that the reality of status lymphaticus as a cause of unexplained deaths was highly problematical.—J. Cruickshank (Aberdeen) found that strongly alkaline emulsions of fæces gave pure cultures of *Streptococcus fæcalis*, strongly acid emulsions gave *B. acidophilus*, and other streptococci, coli being in both cases completely suppressed. On subsequent culture the streptococci were not particularly resistant to acid and alkali.—A. E. Boycott and C. Price-Jones (London) had failed to get experimental evidence that muscular fatigue promoted infection of rats with Gaertner's bacillus or with tubercle bacilli; exhaustion is associated with a great fall in body temperature unless the external temperature is high.—A. T. Glenny (London) drew attention to the variability in the individual responses of animals to toxin injections, and urged caution in drawing conclusions from small numbers of experiments.—E. E. Glynn, R. E. Roberts, and P. Bigland (Liverpool), from a careful analysis of several hundred cases from the local venereal diseases clinic, had found that, when treatment by salvarsan and mercury had brought a Wassermann reaction to the negative, the further administration of mercury by the mouth and especially as grey oil by injection encouraged rather than prevented both Wassermann and clinical relapses. In discussing the possible explanations of this unexpected result they considered the production of mercury-resistant strains of the spirochæte and a general lowering of resistance by the mercury as the most likely factors.—E. E. Glynn and R. Jones (Liverpool), in studying the blood groups of 40 medical students by agglutination and absorption, had come across seven cases in which the cells or sera gave anomalous reactions.—In the demonstrations R. P. Smith (Newcastle) showed a large calcified deposit in the brain, probably a tuberculoma; J. M. Beattie (Liverpool) specimens of foot-and-mouth disease in rats, specimens of pneumonic and bubonic plague, and mesenteric gas cysts in a pig; A. H. Miller (Midhurst) a case of lymphosarcoma in a pig; H. Evans (Liverpool) specimens of leontiasis ossea and of hair balls; W. A. Haig (Cardiff) a streptothrix; and G. S. Williamson and I. H. Pearse (London) the relation of lymphoid tissue to the primary lesion in gastric ulcer.

PEOPLE'S LEAGUE OF HEALTH:

WORK OF THE CHILDREN'S COURTS.

A MEETING was recently convened at 12, Stratford place, London, W., when certain members of the London County Council met unofficially members of the voluntary Advisory Council of the People's League of Health, and the magistrates sitting in the Juvenile Courts, who are advocating reforms in the working of the children's courts in this country. There were present: Mrs. Mathew, J.P., L.C.C., and Miss Adler, J.P., L.C.C., in an unofficial capacity; Dr. A. F. Tredgold, Dr. R. G. Rows, Dr. R. H. Cole, Dr. E. D. Macnamara, of the voluntary Advisory Council of the League; Mr. Clarke Hall, presiding magistrate, Shoreditch Children's Court; and Dr. F. C. Shrubsall. Dr. Tredgold stated that the after-effects of encephalitis lethargica, accounting for much delinquency, were often not recognised in courts, and stressed the fact that this disease was increasing alarmingly. The speaker raised the question as to whether the L.C.C. should be responsible for setting up a special department for the proper investigation of delinquency in children under 16 years of age. Miss Adler pointed out that if a small number of magistrates were specifically appointed to try children's cases, more even treatment would result. The suggestion was made that provision might be made in the Children's Act for the appointment of such special magistrates. Dr. Macnamara suggested that an itinerant magistrate going from court to court would bring powerful influence to bear on the case being heard; while Dr. Rows instanced the practice in Boston, U.S.A., where a clinic is set up in connexion with these cases, and a visiting staff inspects the home of the children, and the magistrates in court have the benefit of this information. Dr. Shrubsall stated that the Children's Act in Canada conferred greater powers on the magistrates than in England. The Advisory Council was of opinion (*a*) that Juvenile Courts should not be regarded as criminal courts, but as courts exercising Chancery jurisdiction, and that no child under 14 years of age should be "convicted," since such conviction involved a stigma upon the child in after life and might prevent his being received in one of the colonies. It was unfair that a child whose bad surroundings made it necessary to send him to an industrial school involved a "conviction." (*b*) That greater powers were needed by the President of a Children's Court with regard to custody—e.g., in arranging for the custody of children whose parents consented to such adjudication. (*c*) That a more satisfactory statistical basis was required, both to determine the child's immediate treatment and future work, and this could only be supplied by a physiological and psychological examination of all serious cases of delinquency. (*d*) That a special home should be established in this country, where medical observation of delinquent children could be systematically and fully made, for this alone would assist the magistrates in court to a complete understanding of the facts of each case before making his recommendation to the court. This was strongly endorsed by Mrs. Mathew. Miss Nethersole, honorary organiser of the League, congratulated those present on the unanimity of opinion that had been reached.

A series of nine lectures will be delivered at the Medical Society of London, 11, Chandos-street, Cavendish-square, W. 1, on What We Should Eat and Why. The first lecture will be given on Wednesday, Jan. 28th, at 6 P.M., by Dr. Leonard Hill, F.R.S., entitled the Nature and Purpose of Food. Tickets and further information can be obtained from Miss Nethersole, 12, Stratford-place, W. 1.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.—At the instance of the Board of Control, a special course in the study of malaria, both from the clinical and laboratory standpoints, is being arranged in February for medical superintendents of mental institutions, for guidance in the treatment of general paralysis of the insane by inoculation of malaria blood.

ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.—The twelfth meeting of the Commission was held at the Home Office, Whitehall, on Jan. 8th, Lord Lawrence of Kingsgate in the chair. The examination of Mr. Edwin Heather, representing the Independent Order of Oddfellows, Manchester Unity, was continued on the following subjects: Dental benefit, extension of medical benefit, the benefits of married women deposit contributors, exempt persons. Proof copies of the oral evidence given at the meetings of Dec. 11th, 18th, and 19th, 1924, are now on sale at H.M. Stationery Office.

Public Health Services.

THE APPLICATION OF APPROVED SOCIETY SURPLUSES.

IN the face of the announcement that the surpluses at the second valuation of approved society funds are likely to reach the very large sum of £30,000,000, it really seems possible for a great advance to be made in the development of the service. At the last valuation there was an overwhelming desire to use the surplus of 17 millions for the main purpose of increasing the cash payments to members in sickness and disablement, but with a surplus of nearly double the amount the anxiety appears to be rather to limit the amount of additional cash benefits, to increase the provision of dental treatment (including dentures), and to extend medical benefit to include specialist and consultant services. It is even suggested that a portion of the surplus might be devoted to research work into the causes of cancer, neurasthenia, and arthritis—all prolific causes of sickness and disability constituting the greatest drain on the funds of the societies. Whatever is decided as to the disposition of the surplus, an attempt should be made on this occasion to establish additional benefits which shall be available to all insured persons, no matter in what society they have membership. While these funds are at present only applicable to certain purposes, the feeling is steadily growing that all the resources of the insurance scheme should be pooled so that a broad scheme of development may be set on foot as soon as the report of the Royal Commission is presented. Our immediate concern should be to convince the public that this development is following the right lines and that the expenditure involved is money well invested. We should be able to guarantee that the return is not only a sound financial investment, but also a much greater gain in the production of a healthy and happy community.

A COUNTY SPECIALIST SERVICE.

The first (and only) report of the Consultative Council on Medical and Allied Services gave as an illustration of a concerted scheme of services the actual example of Gloucestershire, "where the local authorities in the county and its towns, the hospital authorities, and all the doctors have agreed on a plan of services similar to that set forth in this report." We have just received, through Dr. J. Middleton Martin, a report of the Medical Services Committee of the Gloucestershire County Council, dated Dec. 1st, 1924. It seems clear from the figures given therein that the service at present deals mainly with child welfare and the treatment of school-children, though cases of venereal disease and tuberculosis also appear in the tables. The interest of the tables lies in the fact that during the quarter ending June 30th, 1924, specialist services were utilised to the extent of 555 examinations, chiefly for eyes, ears, and throats, and out of these cases 158 were operated on. The cases seen by specialists rose from 488 in the six months ending Dec. 31st, 1922, to 764 for the six months ending June 30th, 1924, while the operations rose from 121 to 220. The cost for these services ranged between £1240 in 1922 and £1697 in 1924 over a six-months' period, the cost in the complete year 1923 being £2842. Unfortunately the service as it is at present is a limited form and is not applicable to insured persons generally, but the fees set out on p. 3 of the report may form some guide to the calculation of the cost of a more inclusive service. At one centre the specialist charges two guineas a visit to the centre to examine eyes or throats, the number of cases treated to be not less than four, and operations were paid for at the rate of £1 2*s*. 6*d*. a case, including the anæsthetist. In other cases payments were made to hospitals, 5*s*. per case for the examination of eyes, and for operation cases not admitted as in-patients, £1 10*s*. There is clearly a very well-running machine in Gloucestershire which could be made available at once for any extension of the insurance service.

TUBERCULOSIS.

Notification of Tuberculosis.—The Ministry of Health has issued new regulations, dated Dec. 18th, 1924, which came into operation on the first day of the New Year. According to these regulations, every medical officer of health must furnish at the end of each quarter a statement showing (*a*) the number of cases of tuberculosis on his register at the commencement of the quarter, (*b*) the number of cases notified to him under the regulations of 1912 for the first time during the quarter, (*c*) the number of cases removed from the register during the quarter (giving the name and address of each such case and the reason for such removal), and (*d*) the number of cases remaining on the register at the end of the quarter. Separate figures must be given in each case for males and females, and for pulmonary and non-pulmonary cases. In a circular dated Dec. 22nd, 1924, the Ministry of Health threatens with prosecution the medical practitioner who is remiss in notifying tuberculosis. He is reminded that a notification of tuberculosis made after the notifying practitioner is aware of the death of the patient is not a notification duly made, and it does not entitle the practitioner to the payment of the prescribed fee. The circular proceeds: "and it appears to the Minister that it may even be desirable to proceed to a prosecution in one or two cases. . . ." The problem to which this circular refers is not simple, and it is one that cannot be solved solely by admonitory injunctions from headquarters. The proportion of cases of tuberculosis not notified till after death varies considerably in different parts of the country, and, as a rule, this post-death-notification-rate may be taken as a rough guide to the degree of coöperation between medical practitioners on the one hand and medical officers of health and tuberculosis officers on the other. Another factor, influencing the post-death-notification-rate, is the amount of help extended in each district to the persons notified; it is obvious that the more a patient is helped consequent on notification, the greater will be the inducement to effect early notification.

Tuberculosis Administration in Lancashire.—The report of the central tuberculosis officer of the Lancashire County Council for 1923 shows that the county death-rate per 1000 in 1923 was 0·70, the lowest yet recorded. This reduction in the tuberculosis death-rate being greater than that for other diseases, it would seem justifiable to conclude that modern anti-tuberculosis measures are eminently rational. Further improvement has been made in reducing the number of omissions to notify tuberculosis, and in the year under review less than 7 per cent. of the deaths from pulmonary tuberculosis were notified after death. In 1918, 18 per cent. of all the notifications were made after death. Further evidence of the improving coöperation between medical practitioners and tuberculosis officers is to be found in the fact that 76·6 per cent. of the new cases (excluding contacts) examined by the tuberculosis officers had been referred to them by practitioners, pensions authorities, school medical officers, and other health officials. On pages 78 to 80 of this report the after-histories of 2228 patients, who completed sanatorium treatment, are compared with the after-histories of 1640 patients in a similar stage of the disease who did not undergo sanatorium treatment. The comparison is in favour of the sanatorium patient. The report is enlivened by the inclusion of photographs of patients at work and rest in the county sanatoriums. The work photographs are supposed to prove that "there are no loafers in the county sanatoria." Could any proof be more convincing?

Tuberculosis Control in Birmingham.—The tuberculosis work in Birmingham is of such a high order that the annual reports by Dr. G. B. Dixon, chief tuberculosis officer, are a source of inspiration. One

of the most admirable features of sanatorium administration in the Birmingham area is the provision of observation beds. Of the patients discharged from all the Birmingham sanatoriums during 1923, no less than 18 per cent. had passed through the observation beds at Yardley-road Sanatorium. In connexion with these beds it is pointed out that "in only a limited percentage of all cases is it possible to arrive at a correct diagnosis of pulmonary tuberculosis in the consulting room after one or two examinations. The provision of an adequate number of observation beds allows of an accurate diagnosis being made in a larger number of what would otherwise remain as doubtful cases." This lesson, that the one-consultation diagnosis is insufficient to act as a pivot on which the whole of the patient's future turns, is one which still requires emphasising.

HOSPITAL NOTES.

ROYAL NORTHERN HOSPITAL.—Thirty-two of the 60 closed beds will shortly be reopened. This has been made possible by the success of an effort to double a benefaction of £20,000 which was offered conditionally upon a similar sum being raised towards the reduction of debt by New Year's Day. There were more than 40,000 subscribers to the second £20,000.

TILBURY HOSPITAL.—Sir P. J. Michelli, secretary of the Seamen's Hospital at Greenwich, points out that the new buildings at the Tilbury Hospital are on the pavilion system and of one story only. They consist of a nurses' home, two wards of 25 beds each, an out-patient department, an operating theatre, and kitchens. Owing to the alluvial nature of the soil reinforced concrete "rafts" are necessary for the foundations. The walls are composed of hollow triangular cement and breeze blocks, two blocks forming a section of the outside wall, with a breeze block in the intervening triangular space. The cost per bed will be only £700. The grounds are being planted in advance of the building, in the hope that there will be well-rooted trees in leaf by the time the new wards are occupied.

POPLAR HOSPITAL FOR ACCIDENTS.—At the sixty-ninth annual festival dinner the Chairman, Sir Charles McLeod, stated that to meet the constantly increasing demands upon the hospital it had been necessary to enter into a contract for new work amounting to over £25,000. This hospital, which has 103 beds, was rebuilt in 1891 and has since been five times enlarged.

LONDON HOSPITAL'S CATGUT FACTORY.—Last year this factory produced £10,250 worth of catgut. Most of it was sold to other hospitals and to surgeons, and some was sent as far afield as Persia and China; the "London" itself used £550 worth. The profits are sufficient to enable the hospital to treat 1000 out-patients or to maintain three beds.

WEST LONDON HOSPITAL: NEW WING.—The sorely-needed new wing is rapidly approaching completion and will be opened next month by Princess Mary. It contains an accident ward of 16 beds, male and female cancer wards, each containing seven beds, two operating theatres, and 26 beds in private rooms for paying patients. The available beds will now number 220. The wing will be opened free from debt, thanks to the generosity of anonymous donors.

BRITISH HOSPITALS ASSOCIATION.—The annual conference will be held at Manchester on June 25th and 26th. Last year the association met in London and in 1923 at Sheffield.

NEW BIDEFORD AND DISTRICT HOSPITAL.—Lord Glanely has laid the foundation-stone of a new hospital for Bideford and the district, to take the place of an inadequate building erected in 1887. It will stand upon a high and quiet spot and will have 26 beds, with provision for extension; the building, designed by Mr. H. Deighton Pearson, will cost over £15,000. At the celebration dinner Dr. E. J. Toye, the Mayor of Bideford, said that he was the first medical practitioner in North Devon to own a motor-car. He paid £400 for it; it cost 7*s.* 6*d.* per mile to run, and after two years he sold it for £26, less £7 for commission and carriage.

LIVERPOOL INFIRMARY.—The first wing of the new nurses' home of the Royal Infirmary, Liverpool, built at a cost of £40,000, was opened on Dec. 31st by the retiring matron, Miss E. M. Cummins. The completed wing is only one-third of the whole building, which will cost about £120,000. Dr. T. R. Glynn, emeritus professor of medicine of the University, reminded the representative audience that the old nurses' home, built in 1865, was the first institution of the kind in the kingdom. The new home, when completed, would be the largest in the country, accommodating 150 nurses.

MANCHESTER CHILDREN'S SANATORIUM AT ABERGELE.—The Public Health Committee of the Manchester City Council have presented a report on the proposed children's hospital or sanatorium at Abergele. There is a very large number of children in Manchester suffering from pulmonary and non-pulmonary tuberculosis, and the existing accommodation is totally inadequate to meet the demand—both as regards the number of beds and the type of treatment provided. The possibilities for modern treatment by sunlight are very restricted in the existing accommodation. Abergele provides an ideal site for the combination of open-air and sun treatment, as it has an altitude of nearly 500 ft. above sea-level and is only about two miles from the seashore. The site chosen is on the committee's estate and consists of 25 acres. The plans provide for a sanatorium for 546 beds, a school for 100 children, and covered playgrounds. The total cost for the complete scheme is £145,000. The City Council has already decided to provide 210 beds as the first instalment of the complete scheme.

WARD-NAMING AT YORK COUNTY HOSPITAL.—A practice not uncommon in French hospitals was introduced on Dec. 24th last at the County Hospital, when the names of four famous York medical men, two of the eighteenth and two of the nineteenth century, were commemorated by naming wards after them. One ward will be known as the "Burton," part of another ward as the "Drake," the remaining part of the same ward as the "Jalland," and the eye ward as the "Tempest Anderson." Dr. John Burton was the original of Dr. Slop in "Tristram Shandy," who seems to have incurred the enmity of Laurence Sterne through an attack on his uncle the Archdeacon of York. He was a notable obstetric surgeon of his period. Dr. Drake was the author of a history of York as well as a physician of merit.

A SUCCESSFUL HOSPITAL FUND.—During its last financial year the Bradford Hospital and Convalescent Fund, which helps to support the Bradford Infirmary, the Eye and Ear Hospital, the Children's Hospital, St. Catherine's Home, and the Workpeople's Convalescent Home, raised over £22,000. More than half of this sum was subscribed by workers in the mills and factories. Bradford Royal Infirmary, which will observe its centenary this year, has long been inadequate, and for some time past possibilities of reconstruction have been under discussion. Nearly 30 years have elapsed since the last enlargement.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JAN. 3RD, 1925.

Notifications.—The following cases of infectious disease were notified during the week—namely, small-pox, 65; scarlet fever, 1835; diphtheria, 1083; enteric fever, 55; pneumonia, 1259; puerperal fever, 43; cerebro-spinal fever, 5; acute poliomyelitis, 7; encephalitis lethargica, 44; dysentery, 7; ophthalmia neonatorum, 99. There were no cases of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there were 6 deaths from enteric fever, none from small-pox, 13 from scarlet fever, 41 from diphtheria, 62 from measles, and 100 from influenza. In London itself the deaths from diphtheria numbered 8, from whooping-cough 30.

Correspondence.

"Audi alteram partem."

THE PATHOLOGY OF PYORRHŒA.[1]

To the Editor of THE LANCET.

SIR,—In an article in your issue of last week summarising Dr. Box's work on pyorrhœa, you paid me the compliment of referring specifically to my view as to the nature of that disease. By inference you made it clear that you would not expect me to endorse all Dr. Box's contentions, and therein you are right. May I ask a short space to outline my reasons? Dr. Box's main thesis seems to be that "traumatic occlusion" induces an internal disease "rarefying pericementitis fibrosa," which opens the way to bacterial infection from the periodontal sulcus. My position is that all the disease subdivisions he enumerates, including "rarefying pericementitis fibrosa," are of the nature of an infection which gains access from the periodontal sulcus—that the beginning is always a marginal gingivitis. I base my opinion on clinical observation.

On the "traumatic occlusion theory" the perfect arch, with perfect occlusion of all 32 teeth, should be practically immune to pyorrhœa. Unfortunately the reverse is the case; the perfect arch is also a perfect breeding ground for pyorrhœa, a point which can be readily apprehended when its capacity for retaining fine-ground sticky food in hidden stagnation areas is appreciated. An exaggeration of this condition is seen in the irregular dental arches so often found in association with "adenoids."

On the other hand, there are people with normally shaped dental arches, but naturally deficient in number of their teeth, and in these people the deficiency in number is often accompanied by spacing of the teeth they do possess. There are also others who have had teeth extracted in early life in such a way as to allow of spacing of the remaining teeth. In both these classes normal occlusion is utterly disorganised and "traumatic occlusion" must be rampant, yet the clinical fact is that they are markedly less liable to pyorrhœa because, in a word, drainage is easier. A very striking illustration of this may sometimes be seen in cases where unilateral extraction has been practised in early life; the extracted side will be found free from pyorrhœa, decay, or tartar, while all these conditions are all well developed on the other. Further, "traumatic occlusion" might be supposed, at first at least, to give rise to a physiological response and so to require time to do its evil work; in fact, marginal gingivitis and pyorrhœa are common from childhood onwards, giving scant time for the antecedent "traumatic occlusion" and "pericementitis fibrosa."

Again, clinical observation of the results of treatment leads me to expect far better results in the case of isolated teeth, whatever their occlusion, than in the case of teeth supported by their neighbours. Cleaning of the last millimetre of the exposed tooth-neck is then possible, and this cleaning is the most efficacious conservative treatment I have yet found.

Turning to another point, I think Dr. Box tends to minimise the dangers of pyorrhœa when he insists that after a primary ulceration of the angle of the periodontal sulcus re-epithelialisation of the ulcerated area takes place, and that this progressively follows the deepening pocket. I have cut many sections and my experience is that there are always ulcerated areas to be found, and though there is often abundant epithelial proliferation it never forms a complete covering to the tooth-ward side of the gum-flap.

[1] Copies of Bulletin No 7 containing Dr. Box's Studies in Periodontal Pathology may be obtained from the Secretary, Canadian Dental Research Foundation, 240, College-street, Toronto (price $1). A limited number of Bulletins covering Dr. Box's previous work on the Dentinal Cemental Junction and Normal and Pathological Histology of the Dental Pulp will be supplied upon application by the Foundation.

May I ask one line more of space—to congratulate Dr. Box most heartily on his work.

I am, Sir, yours faithfully,

London, Jan. 11th, 1925. J. G. TURNER.

ALASTRIM, PARA-SMALLPOX, AND VARIOLA.

To the Editor of THE LANCET.

SIR,—In the correspondence on the subject of alastrim as against small-pox in your issue of Jan. 10th and in the various other articles which have been published from time to time on the same subject, frequent reference is made to the Willesden outbreak of small-pox which occurred last summer. As all the cases, ten in number, which occurred in that outbreak were under my care, perhaps an account of the more salient features in connexion with them may help to clear up the question as to whether alastrim and small-pox are one and the same disease or two separate diseases.

To begin with, the original source of this outbreak is unknown. It was suggested, however, possibly because there were three fatal cases and the type of small-pox prevalent in this country was benign, that the source of infection was imported from abroad, but nothing definitely in that direction was proved. A much more likely source of the trouble, to my mind, was that a mild and undetected case of small-pox was possibly at large in the district, and the possibility of this is not at all unlikely if one remembers that large numbers of people from the Midlands, where small-pox is rife, were passing through Willesden on their way to Wembley, and that en route some of them resided temporarily in the district. Referring now to the first case of the outbreak (E. W.), a child of 3 years, who first developed symptoms on June 9th, the subsequent cases developing some 12 days after, the attack that this primary case suffered from was of the mildest. Perhaps if I say the premonitory symptoms were of the usual nature associated with that type of small-pox but sufficient to keep him to his bed for three days, and if I enumerate the number of lesions on the various areas of the skin surface, a better idea of the exact nature of the case may be gained than by any written description. The following list gives the number of lesions and the sites on which they were situated:—

Face	6	Legs and feet	33
Forehead	2	Upper back	4
Upper chest and chest	4	Lower back	20
Lower chest and abdomen	7	Upper arms	21
Thighs	25	Forearms and hands	18

Of the total of ten cases which constituted the outbreak, six suffered from attacks of the mildest nature, and of these three were in unvaccinated children, whilst the remaining four developed attacks of the severest type, two patients being unvaccinated. Of these four severe cases three died from hæmorrhagic small-pox (purpura variolosa) in its worst forms, the fourth case, an unvaccinated man, recovering after a moderately severe confluent attack.

In the instructive and very interesting articles on alastrim by Prof. R. Jorge, lately appearing in THE LANCET, and in the descriptions of this disease appearing elsewhere, the writers have so clearly mapped out their idea of alastrim that no vestige of doubt is left in the minds of readers as to the exact appearance that alastrim assumes. Having therefore a clear conception of the clinical aspect of the disease, I have no doubt in my mind that the six mild cases in the recent outbreak here met in every detail that I could see the requirements of alastrim as set out by its protagonists, and I would at the same time submit, and I base the statement on a fair experience of small-pox during the last 30 years, that these six cases in no way varied from mild cases of small-pox such as were to be seen in London in the epidemics of 1893 and 1902, and such as are to be found in every outbreak of small-pox of any size in a large proportion of cases. With regard to the remaining four cases, all of them

severe, three of which were fatal, there will be no dispute, least of all by the supporters of alastrim, that these were other than small-pox.

As I read the case for alastrim it is contended that this disease differs from small-pox inasmuch as it does not seem to be so infectious, in this country at any rate, as small-pox; it is said to be mild, is rarely fatal, and furthermore, that the date of appearance of the rash and subsequent vesiculation, pustulation, and non-scarring of the skin is said to be quite out of keeping with what occurs in that disease. Taking these points in sequence.

First as regards infectiousness. Although the outbreak in Willesden only affected one house, every member of the household was attacked, but, on the other hand, it remains a fact that one case, a man of 40 years, spent the afternoon of the day on which he developed the eruption on a 'bus ride to Wembley. Yet no further cases developed in consequence. One single instance of this kind proves nothing, but had there been no fatalities amongst the ten cases, no doubt the outbreak would have been labelled alastrim, and the fact that such a circumstance led to no further cases would have been duly laid stress upon. Again, with regard to the date of appearance of the rash. Alastrim is said to develop its rash at a more variable and later date than small-pox, which seems to suggest that the eruption in small-pox is always to be found on one particular day of the disease, but to anyone conversant with small-pox that is known not to be the case. With regard to the statement that the eruption in alastrim appears at a later date than small-pox, and before accepting it, especially as regards alastrim in this country, I should like to be convinced that the dates on which the eruption is said to appear are the outcome of the personal observation of the medical officer in charge and not based on the mere statement of the patient. Everyone knows that the day on which the patient notices the rash is not necessarily the day on which the rash actually appears, yet there is good reason to believe that data on this particular point are based on information supplied by the patient himself. However, I do not wish to labour the point. With regard to the date on which the ten cases in this district developed their rashes the following are the figures. In two cases the eruption appeared on the third day of illness, in six cases on the fourth day, and in one case on the fifth day, whilst in the tenth case the patient died before the specific eruption appeared.

Referring now to the subsequent development of the eruption in these cases, the most remarkable feature was the way in which the phases of papulation, vesiculation, and pustulation were epitomised, and this was as marked in the unvaccinated as in the vaccinated cases. Moreover, in no case, not even in the confluent case, could complete pustulation be said to be present. This phase was always ill-defined and this feature was remarked upon by all who saw the cases. The vaccinated cases in this respect showed no difference when compared with the unvaccinated. At the height of such suppuration as took place the pustules were dome-shaped, but never pronounced in size or definitely suppurating throughout. They remained a clear yellow serum with opaque streaks, and might well be called amber-coloured, a term used aptly enough by Dr. Garrow in a paper on para-smallpox recently read by him to the Fever Section of the M.O.H. Society in London, when describing the colour characteristics peculiar to the pustules in that disease. In none of the cases did the pustules burst in the orthodox way, an inspissation of the contents of the pustule gradually transformed it into a dry scab which readily separated, leaving nothing but the most superficial of scars on the skin, such as might be expected in a case of varicella.

The Willesden outbreak is therefore definitely in favour of the unicist. There could be no possibility of a double source of infection. The primary infecting case was very definitely a mild attack in an unvaccinated member of the family in which the outbreak occurred, and to which and the other occupants of the house the outbreak was limited. It gave rise to nine cases, four of which were indisputably small-pox; the remaining six (including the primary case), in the opinion of those who saw them, being ordinary mild small-pox, but which at the same time conformed in every clinical detail with the requirements of alastrim.—I am, Sir, yours faithfully,

W. J. J. STEWART,
Medical Superintendent, Willesden Fever Hospital, London, N.W.

Jan. 10th, 1925.

SMALL-POX OR PARA-SMALLPOX.

To the Editor of THE LANCET.

SIR,—I have read Prof. Ricardo Jorge's memoir, appearing in THE LANCET of Dec. 20th and 27th, with much interest. Undoubtedly, it is a valuable contribution to the literature of the subject, but his conclusions are too important to pass unchallenged. It is indisputable that the non-virulent strain of small-pox which has been occurring in this country during the past few years and which, as Prof. Jorge shows, has frequently been experienced in other parts of the world, presents a very different administrative problem from the so-called "classical" small-pox. As you, Sir, have pointed out in your leading article on the subject (THE LANCET, Jan. 3rd), attempts to treat outbreaks of the present non-virulent strain of small-pox just as if it were a virulent strain only tend to bring administrative action into contempt and disrepute.

Some distinction in terminology is, I think, called for, but not such as to imply that we are dealing with a separate and distinct disease. From the administrative point of view there is certainly something to be said in favour of Dr. Garrow's suggestion of the term "para-smallpox," but from the scientific standpoint such a term can only be justified when—as in the analogous case of para-typhoid—we have succeeded in demonstrating a definite and distinctive causative organism. In the meantime, however, the thesis of the "dualists" that alastrim or para-smallpox is a distinct pathological entity does not appear to me to have been made out. It is merely a surmise based upon a difference in virulence and not supported by any specific clinical differences at all adequate in view of the great importance of the issue.

We have to remember that differences in the virulence of small-pox have ever been a characteristic of the disease. In pre-vaccination times the fatality of different epidemics at different periods varied enormously, though we can easily understand that the more fatal and disastrous epidemics were the ones chiefly recorded in the pages of literature. Only on the hypothesis that much of the small-pox of pre-vaccination times was very mild can we account for the fact that the disease, which almost everyone contracted at some period of his life, did not depopulate the country. Moreover, since the vaccination controversy arose there has been a tendency in text-books to unduly emphasise the heavy fatality of small-pox before the days of vaccination and to rather over-paint the picture.

In this connexion the experience of Leicester is of special interest because, to a larger extent than elsewhere, we have been dealing (since 1885) with the behaviour of small-pox in a comparatively unvaccinated population. In 1872 there was an epidemic of severe small-pox and 346 deaths occurred. The case-mortality is unknown, but undoubtedly it was high. In 1892–93, in the next epidemic, there were 355 cases with 21 deaths, a case-mortality of only 5·9 per cent. In the epidemic of 1902–03, 394 cases occurred also with 21 deaths, a case-mortality of 5·3 per cent. In the epidemic of 1903–04, 321 cases occurred with only four deaths, a case-mortality of only 1·2 per cent. Clinically the cases in this epidemic were indistinguishable from those I saw at Gloucester in 1923, though the average severity was slightly higher.

Naturally, with the experience of this epidemic in my mind, I was less disposed to marvel at the mildness

of the Gloucester epidemic than were some of those who had been taught to believe that small-pox in the unvaccinated is almost invariably a terrible and fatal disease. If we were to have another epidemic in Leicester to-day it is not unreasonable to think that the fatality would be still lower.

But here is the difficulty: So-called alastrim or para-smallpox occasionally causes deaths, as Prof. Jorge admits. Even at Gloucester there was at least one genuine death from small-pox. Then, where are we to draw the line between small-pox and para-smallpox? Was the Leicester epidemic of 1903-04, with a case-mortality of only 1·2 per cent., small-pox or was it para-smallpox? And if the latter, what was the nature of the epidemic of the previous year with a case-mortality of 5·3? What are the criteria on which we are to decide? Frankly, after reading Prof. Jorge's memoir carefully, and also the writings of Dr. Garrow, the chief "dualist" in this country, I fail to find any essential difference, clinical or otherwise, between small-pox and para-smallpox except that of virulence. Such apparent differences as there may be are not specific and can easily be explained as being due to differences in virulence. They do not justify us in postulating a distinct disease, still less do they enable us to make a differential diagnosis.

We have a very analogous case in scarlet fever. If a medical Rip van Winkle were to return to practice after an absence, say, of 50 years, he might make out just as good a case for the proposition that the mild non-fatal "scarlatina" which he found filling the fever wards of our isolation hospitals to-day was a different and distinct disease from the dreaded scarlet fever which he remembered, and which not infrequently carried off several members of the same family. He could point to the comparative absence of constitutional disturbance, of angina, "strawberry" tongue, and other "classical" symptoms, and the freedom from the numerous dreaded complications and sequelæ. But we should rightly object to his calling it para-scarlet fever!

To return to small-pox; I think that there is much more to be said in favour of Dr. R. W. Jameson's suggestion in his article in this week's LANCET (Jan. 10th). This article is so refreshingly original, and is so full of sound common-sense, that I commend it to all who are interested in small-pox and its administrative control. Dr. Jameson suggests that we should call the present non-virulent small-pox "variola minor," using the term "variola major" for the classical form. Such a terminology has certain obvious administrative advantages, whilst avoiding the confusion introduced by the term "mild small-pox" at present in use. Also it does not commit us to the theory, as yet, I submit, unjustified, that we have to deal with a distinct disease—or even a definite variety—though it does not shut the door on those who prefer to hold this theory.

I am, Sir, yours faithfully,

Leicester, Jan. 12th, 1925. C. KILLICK MILLARD.

FATE OF THE BULBUS CORDIS.

To the Editor of THE LANCET.

SIR,—I had the privilege of hearing Sir Arthur Keith's lecture on the Fate of the Bulbus Cordis in the Human Heart at the London Hospital, which appeared in your issue of Dec. 20th, 1924. Illuminating in demonstration and charming in delivery, like most essays of this author, as the lecture was, there are one or two points on which, with your permission, I should like to make a short comment.

While there are probably a few cases of valvular adhesion in fœtal life, which may still be attributed to intra-uterine endocarditis, there can be no doubt that the vast majority of congenitally abnormal hearts are malformations—that is, failures or arrests in development. Sir Arthur Keith's papers published in the *Journal of Anatomy and Physiology* in 1904-5, and in THE LANCET in 1909, sufficiently proved this thesis, and now that he has so fully and lucidly stated the point again, the clinician will not be able, in my opinion, to avoid endorsing his contention.

The points dealt with are interesting clinically as well as anatomically. The early obstruction of the bulbar avenue and pulmonary outlet forces the blood-stream towards the left heart through abnormal or temporary channels in the ventricular or auricular septum, a diversion which may, under some conditions, be compatible with considerable length of life. One such case in a man of 72, in which the right ventricle was underdeveloped and the pulmonary arterial valve all but obliterated, but the foramen ovale very large and patent, I published in the *Journal of Anatomy and Physiology* in 1917-18. In a paper on the Musculature of the Aorta and of the Cardiac Valves, Anatomically, Physiologically, and Clinically Considered (*Edin. Med. Jour.*, September, 1923), I dealt with a point discussed by Sir Arthur Keith—namely, the persistence of the elasmobranch or shark type in the condition of the conus arteriosus in man. On the possible function of the bulbus in the fish, he makes interesting comment. He is inclined to regard it as protective of the circulation through the gills. Longitudinal sections, as anyone may satisfy himself, of the heart, bulbus, and aorta, in elasmobranchian and teleostean fishes, show that in the former the bulbus—that is, the heart muscle—extends up the wall holding the ladder of multiple valves, just to the point which secures effective embracement of the whole series of cusps, and in teleosteans, to a point embracing the single set of cusps, beyond which lies the large non-contractile bulbus, which is really the strong base of the aorta.

Sir Arthur Keith suggests that the bulbus cordis in these cases serves to protect the delicate gill circulation from the powerful impulse of the single ventricle. It appears to me, however, that driving the blood through the systemic arteries of the fish is probably an easier matter than maintaining the circulation through the gills, which are exposed to heavy hydraulic pressure, and the deeper the fish lies, the heavier the pressure. As we know, the gill arteries are more directly exposed to this pressure than the gill veins. The contractile bulbus of the cartilaginous elasmobranch and the fibrous non-contractile bulbus of the bony teleostean both thus appear to serve the purpose of enforcing ventricular push and guarding against bulbo-gill variations of pressure. The steady maintenance of pressure in the pulmonary circuit in man is important. The retentive power of inspiration on the circulation and the projective influence of expiration are equalised by the contraction of the conus, which can be shown to precede left ventricular systole, as Sir Arthur Keith suggests in his lecture, and as I indicated in the paper to which I have referred.

On one more point, which I regard as both interesting and important, I would remark. The lecturer stated (loc. cit., p. 1271) that the musculature of the internal or aortic cusp of the mitral valve is the only remains of "the lesser curvature of the bulbo-ventricular tube of the primitive heart" on the left side. In the paper to which I have referred I showed that this important remnant was not only in organic continuity with the general auricular muscle, but that it was also an integral part of a distinct sphincter of the auricular orifice, and a powerful aid in securing mitral valvular competency. It is an interesting structure not only anatomically but also clinically, for its weakening in auricular fibrillation and under some other circumstances, permits that mitral reflux which is no longer the negligible condition it was so loudly proclaimed to be not long ago. The character of this sphincter as a bulbo-ventricular remnant supports the view I expressed (loc. cit.) that its contraction persists during ventricular systole—that is, when the rest of the auricle is in a condition of receptive relaxation. It is the last auricular act, and manifestly could not be otherwise.—I am, Sir, yours faithfully,

ALEXANDER BLACKHALL-MORISON.

London, Jan. 3rd, 1925.

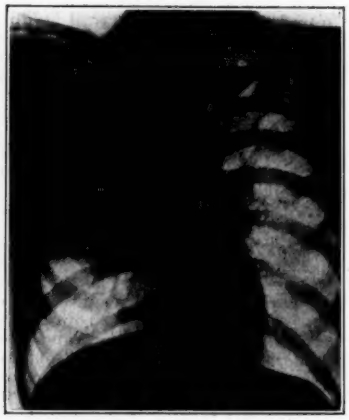
BRONCHO-PULMONARY SPIROCHÆTOSIS.

To the Editor of THE LANCET.

SIR,—We were much interested in Dr. Y. Schwarz's account of broncho-pulmonary spirochætosis in THE LANCET of Dec. 27th, 1924, inasmuch as there is at present in this sanatorium a similar case, the history being as follows:—

Man, aged 40, eight years ago suddenly spat up a lot of foul-smelling chocolate-coloured material; this went on for some days, gradually becoming paler in colour, greenish, and finally yellow, and disappearing in a few weeks. The patient then kept perfectly well with no cough or sputum until three years ago, when exactly the same thing happened again. He once more recovered and had no trouble until his present attack, which commenced five months ago with the same train of symptoms. This attack, however, has been more severe than the previous ones, and the sputum is not disappearing as it did before. It went through the same stages—that is to say, chocolate-coloured and foul-smelling, gradually becoming paler, green, and then yellow. It is now, and has been for some weeks, at the yellow stage. The patient has lost 1 st. 11 lb. in weight, but is not toxæmic at present. The pulse is slow and good, there is as a rule no fever, and the appetite and general condition are satisfactory. There have been also some small attacks of hæmoptysis. The patient has lived for the last 15 years in Singapore, and he recovered from the first two attacks without leaving Singapore. However, owing to the prolonged nature of the present attack, he was sent to Switzerland, and finally was admitted into the Palace Hotel Sanatorium, Montana, on Dec. 17th, 1924.

FIG. 1.



Radiogram: light in front.

FIG. 2.

Radiogram: light behind.

This patient is at present being treated by regulated sun baths, and by injections every five days of neosalvarsan. We shall watch with great interest the progress of the case, and if the conditions have not cleared up we shall in all probability attempt to close up the lesion by inducing an artificial pneumothorax. Unlike the cases described by Dr. Schwarz, the X ray signs, as is seen in the accompanying radiograms, were quite definite and not unlike those of an interlobar empyema. The sputum has been examined frequently since the patient was admitted to the sanatorium, and the organisms of Vincent's angina—both spirochæte and fusiform bacilli—have constantly been found in the dark-ground illuminator, in silver stain, Giemsa, and ordinary stains.

In connexion with the suggestion contained in Dr. Schwarz's article, that the fusiform bacillus may be another form of the spirochæte, it is interesting to note that when the sputum was examined by Prof. Galli-Valerio, of Lausanne University, on Dec. 11th, 1924, this fusiform bacillus was present in large numbers, but no spirochætes were then found.

We are, Sir, yours faithfully,

BERNARD HUDSON.
A. J. MORLAND.
E. ZIMMERLI.

Montana, Switzerland, Dec. 31st, 1924.

INDIVIDUAL RESISTANCE IN THE CURE OF MALARIA.

To the Editor of THE LANCET.

SIR,—In the Critical Consideration of the Treatment of Malaria by Colonel Clayton Lane in the November number of the *Tropical Diseases Bulletin*, one reference only is made to the resistance of the individual as being of importance in the cure of malaria, while your leading article of Jan. 3rd appears to take the line that the one and only factor of importance in the treatment of malaria and the prevention of relapses is the giving of quinine and to have in mind only that the essential idea should be to find out the best dosage, the most potent preparation, and the appropriate period for the administration of the drug.

Failure to realise and allow for the factor of the resistance of the individual seems to me to explain much of the difficulty associated with the cure of malaria. I have only occasionally, among very many cases, come across the difficulties that were met with in war-time patients, but then my practice, even during the years of the war, has been confined to malarial patients who were living under peace conditions, and when difficulties did occur they were found to be due to some associated disease which caused a detrimental interference with the resistance of the individual.

It is, of course, elementary that the severity of a disease varies with the relation of the dosage of the infection to the resistance of the individual. Resistance can be lowered in many ways, but one of the most potent must have been the conditions of war service under which, in addition to numerous physical hardships, the ever-present expectation, almost amounting to certainty, of wounds and death can hardly have been other than a cause of depressed resistance.

The treatment of peace-time malaria is easy and commonly successful. Failure may be due to faulty quinine administration or to concomitant infections which will require to be dealt with if the patient is to recover quickly and satisfactorily.

I am, Sir, yours faithfully,

London, W., Jan. 9th, 1925. V. S. HODSON.

GLUT OF WOMEN DOCTORS.

To the Editor of THE LANCET.

SIR,—As showing the glut of women doctors the following figures may be of interest. To-day there were 78 applicants for the post of junior resident medical officer (female) at the Children's Hospital, Sunderland, salary £100 a year. Thirty-three held English qualifications; 33 Scottish, and 12 Irish. Of the English qualifications ten were London graduates, four Durham, two Birmingham, one Sheffield, seven Manchester, and six London Conjoint Colleges. Of the 33 Scottish qualifications three were of St. Andrews, nine of Edinburgh, 13 of Glasgow, and eight of Aberdeen. Of the 12 Irish qualifications seven were of Belfast, three of Dublin University, and two of Irish Conjoint Colleges. Forty-five out of the 78 had held previous public appointments, and many of them had held several.

I am, Sir, yours faithfully,

Sunderland, Jan. 13th, 1925. WM. ROBINSON.

ERASURE FROM THE MEDICAL REGISTER.

To the Editor and Proprietors of THE LANCET.

DEAR SIRS,—In THE LANCET'S report of proceedings at the General Medical Council's winter session, which opened on Nov. 25th, there appears a reference to my case, considered by the Council, which in more than one respect is likely to create a serious misunderstanding, on the part of readers, that may be damaging to me.

It is incorrect to report that "Dr. Haydn Brown attended in answer to his notice and explained that he had really no answer to make to the charge, but that he was ready to reply to any questions put to him." My reply was that I had little to say "beyond what was contained in my written replies to the charge as sent to the Registrar and to the solicitor of the Council respectively."

The members of the Council were each supplied with a copy of the double reply, which consisted of *no less than 18 quarto typewritten pages.*

I must therefore ask you to be kind enough to correct the injurious impression by publishing this letter in a prominent position in an early issue of THE LANCET, as well as the 18 quarto pages referred to—which I enclose.—Yours faithfully,

HAYDN BROWN.

Cavendish-square, W., Jan. 8th, 1925.

*** Dr. Haydn Brown gives his opening words correctly. Our report might have added that certain written replies had been sent, but it could not include these documents of which the contents were not made public.—ED. L.

REX *v.* BATEMAN.

IN view of an Appeal which we understand is pending in this case we are unable to publish the letters which we have received this week.

MANCHESTER STREETS AND THE TOLL OF THE MOTOR.—During 1924 the Chief Constable of Manchester reports that there was a much larger number of street traffic accidents in the city than in 1923. The number of fatal accidents was 68; in 1923 there were 48. The following classification shows the details—the numbers in brackets indicate the corresponding numbers in 1923. Horse-drawn vehicles 9 (6), mechanically-propelled vehicles—motor-cars, omnibuses, &c.—40 (36), tramcars 9 (5), pedal cycles 1 (2). There were 1655 non-fatal accidents compared with 1386 in 1923, an increase of 269, classified as follows: Horse-drawn vehicles 93 (64), mechanically-propelled vehicles 1055 (964), tramcars 280 (197), pedal cycles 227 (161). Motor vehicles were concerned in most of the accidents, and many occur at tram stops. The corporation has tried repeatedly to obtain powers from Parliament to regulate traffic at the tram stops, so as to reduce the danger to a minimum. Last year a clause in a Corporation Bill which would have compelled motor vehicles to pull up at the compulsory tram stops when cars are standing there was rejected by the House of Lords on the ground that the subject was one for general rather than local by-law.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a quarterly meeting of the Council of the College on Jan. 8th, Sir John Bland-Sutton, President, in the chair, Mr. Herbert S. Pendlebury was introduced, and having made the declaration in the terms of the oath prescribed by the Charter of 1800, was readmitted a member of the Court of Examiners.—Mr. Richard Higgins Burne, M.A. was awarded the honorary gold medal of the College in recognition of his valuable services to the College as Curator of the Physiological Department of the Museum and his important contributions to biological science.—The John Hunter Medal, with the Triennial Prize, was awarded to Mr. W. E. Le Gros Clark for his researches in anatomy.—Mr. Percy Sargent was appointed a member of the Court of the University of Bristol.—A letter from the Secretary to the Anatomical Committee of London stating that the licensed teachers of anatomy in London regret to report that the number of bodies available for teaching anatomy and operative surgery had diminished appreciably during the past year, and that they accordingly beg the Council to reconsider the question of requiring candidates for the M.R.C.S. examinations to produce evidence of having performed operations on the dead body until an improvement in the supply of material can be reported, was referred to a committee to consider and report thereon.—The President reported the retirement of Mr. John Murray from the Court of Examiners on Feb. 12th and stated that the vacancy thus occasioned would be filled up at the ordinary meeting of the Council on that day.

The under-mentioned diplomas were conferred, conjointly with the Royal College of Physicians of London, upon the following candidates:—

DIPLOMA IN PUBLIC HEALTH.

Dora M. Berry, J. Bevan-Jones, Hilda A. Bond, and N. Briggs, Univ. Coll.; W. H. Brodie, Aberdeen; E. B. Brooke, St. Bart.'s; Ellinor M. Burnett, Univ. Coll.; E. H. Cluver, Oxford and Johannesburg; E. A. Coldrey, St. Bart.'s; A. Y. Dabholkar, Bombay and Roy. Inst. Public Health; A. A. Denham, Edinburgh, Cambridge, and Roy. Inst. Public Health; Evelyn B. G. Ewen, Edinburgh and Univ. Coll.; C. Glen, Glasgow; Gertrude E. Harre and Eva M. Johnson, Univ. Coll.; J. Kapoor, Punjab and Univ. Coll.; Margherita M. Lilley, St. Andrews and Univ. Coll.; A. Mitchell, King's Coll.; W. E. M. Mitchell, St. Bart.'s; R. A. Olphert, St. George's and Univ. Coll.; I. M. Rattray, Cambridge, St. George's, and King's Coll.; G. C. E. Reffell, Durham and Roy. Inst. Public Health; L. R. Shore, St. Bart.'s; H. K. Snell, King's Coll.; Eleanor C. E. Stone, St. Mary's and Univ. Coll.; Eileen M. Turner, Univ. Coll.; and R. G. R. West, St. Bart.'s.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.

T. N. Banerjee, K. S. Captain, R. P. Cormack, D. M. de Silva, W. H. Dye, D. H. C. Given, H. P. Hacker, R. J. Harley-Mason, D. Hynd, Honoria S. Keer, R. N. Khosla, G. Louw, Una F. M. Morton, S. L. Navaratnam, D. R. Nayar, J. A. O'Flynn, H. C. E. Quin, C. F. Shelton, P. N. Suri, E. W. Wade, and H. O. Watkins-Pitchford.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.

A. H. G. Burton, C. H. Comerford, E. H. Connell, G. W. T. Fleming, F. McLagan, W. G. Masefield, G. Somerville, and M. L. Sutcliffe.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.

N. S. Carruthers, B. Friedman, F. B. Gilhespy, W. G. R. Hore, G. W. Robinson, and D. A. Thomson.

UNIVERSITY OF OXFORD: RADCLIFFE TRAVELLING FELLOWSHIP, 1925.—An examination for a Fellowship of the annual value of £300, and tenable for two years, will be held in Hilary Term, 1925, beginning on Tuesday, Feb. 17th, at 10 A.M. Candidates must have passed all the examinations required by the University for the degree of Bachelor of Arts and for the degree of Bachelor of Medicine. They must not have exceeded four years from the time of passing the last examination required for the degree of Bachelor of Medicine. The examination will occupy four days. Papers will be set in physiology, pathology, and preventive medicine, and a subject will be proposed for an essay. There will also be a practical examination in pathology. Any candidate desiring to offer in addition a special branch of either medicine or surgery must send notice of this to the Regius Professor of Medicine on or before Feb. 4th. The successful candidate must before election declare that he intends to devote himself during the period of his tenure of the Fellowship to the study of medical science and to travel abroad with a view to that study. The Fellowship will be vacated ipso facto by a Fellow who spends more than nine months of the tenure within the United Kingdom. The Regius Professor of Medicine and the examiners present

a yearly report on the work done by each Fellow to the electors, who may, if they think the report unsatisfactory, declare the Fellowship forfeited. Intending candidates should send their names, addresses, qualifications, &c., to the Regius Professor of Medicine, at the Dean's Office, Department of Medicine, University Museum, Oxford, on or before Wednesday, Feb. 4th.

The degree days in the coming term are as follows: Thursday, Jan. 22nd, Saturday, Feb. 14th, and Saturday, March 28th, at 2.30 P.M. respectively.

UNIVERSITY OF LONDON.—A course of eight lectures on Carbohydrate Metabolism will be given by Mr. J. A. Hewitt, Ph.D., D.Sc., lecturer in biochemistry in the University, at King's College, Strand, W.C., at 5 P.M. on Mondays, Jan. 19th and 26th, Feb. 2nd, 9th, 16th, and 23rd, and March 2nd and 9th; also a course of 12 lectures on the Physiology of Muscle and Nerve will be given by Prof. A. V. Hill, F.R.S., Jodrell Professor of Physiology in the University, at University College, at 11 A.M. on Fridays, Jan. 23rd and 30th, Feb. 6th, 13th, 20th, and 27th, March 6th, 13th, 20th, and 27th, and April 3rd and 10th. Attendance at either of these courses is recognised in connexion with the B.Sc. (Honours) Degree in Physiology.—A course of three lectures on the Anatomy and Physiology of the Sympathetic Innervation of the Striated Muscle prepared by the late Prof. John Irvine Hunter, M.D. (of the University of Sydney), will be given by Dr. G. Elliot Smith, professor of anatomy in the University, at University College, Gower-street, W.C., at 5 P.M. on Mondays, Jan. 19th, 26th, and Feb. 2nd.—A course of six lectures on the Physiology of Reproduction will be given by Dr. A. S. Parkes, at University College, at 5 P.M. on Thursdays, Jan. 22nd and 29th, and Feb. 5th, 12th, 19th, and 26th.—A course of four lectures on the Physiology of Plain Muscle will be given by Prof. C. Lovatt Evans at St. Bartholomew's Hospital Medical College (Physiology Department, 6, Giltspur-street, E.C.), at 5 P.M. on Wednesdays, Jan. 14th, 21st, and 28th, and Feb. 4th. Admission to all the above courses of lectures is free.

MEDICO-LEGAL SOCIETY.—A meeting will be held at 11, Chandos-street, Cavendish-square, W., on Tuesday, Jan. 20th, at 8.30 P.M., when a paper will be read by Mr. F. Llewellyn Jones, H.M. Coroner for Flintshire, on Laws of Nations and the Health of Nations: A Survey of International Health Activities Before and After the Great War. This will be followed by a discussion.

ST. MARY'S MEDICAL WOMEN'S ASSOCIATION.—At a meeting of St. Mary's women, past and present, held on Nov. 27th, 1924, it was decided to form an association, to be known as the St. Mary's Medical Women's Association. Its objects are those of a social club and a mutual aid society. Any woman educated at St. Mary's Hospital, Paddington, who, by an oversight, may not have received notice of the formation of this association, is asked to communicate with the Hon. Secretary, Mrs. Bolton, East Weald, Bishop's-avenue, London, N. 2.

ROYAL MICROSCOPICAL SOCIETY.—The annual meeting of this society will be held in the Lecture Hall, 20, Hanover-square, London, W. 1, on Wednesday, Jan. 21st, at 8 P.M., when Mr. A. Chaston Chapman, F.R.S., will deliver the presidential address on the Yeasts: A Chapter in Microscopical Science. The Industrial Applications Section will meet in the Lecture Hall on Wednesday, Jan. 28th, at 7 for 7.30 P.M., when a number of communications dealing with the Use of the Microscope in the Dairying Industry will be read and discussed. Prof. R. Stenhouse Williams will preside.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—A meeting of the general council of this Fund was held on Jan. 13th at the offices of the Fund, 7, Walbrook, London, E.C. There were present Lord Stuart of Wortley (in the chair), Major-General Sir Cecil Lowther (hon. secretary), Dame Louisa Aldrich-Blake, Sir Cooper Perry, Mr. Leonard L. Cohen (hon. secretary), Mr. W. J. H. Whittall. The order of appointment, signed by the President, of the members of the general council, members of committees, and officers, respectively, for the year 1925 was read. The resolutions providing for the work of the Fund for 1925, which were approved at the meeting of the President and general council held at St. James's Palace on Dec. 16th, 1924, were formally adopted.

ELIZABETH GARRETT ANDERSON HOSPITAL.—In aid of the extension appeal fund of this hospital a concert was held under the auspices of the National Sunday League in the Palladium, Oxford-street, London, W., on Sunday, Jan. 11th. The concert was organised by Miss Marie Tempest, assisted by Miss Miriam Warner, and an excellent programme of songs, instrumental music, and amusing parodies was rendered by well-known artistes, including Mr. T. Durac Minogue, Miss Grace Ivell and Miss Vivian Worth, Miss Elizabeth Pollock, the "Kansas City" Syncopated Band, Mr. Hubert Eisdell, Mr. Morland Hay, Miss Marion Browne, Mr. Ernest H. Mills, Messrs. Layton and Johnstone, Mr. Ivor Walters, Miss Clara Serena, the Gresham Singers, and Mr. Laurence Anderson. Dame May Whitty said a few words on the work done by the hospital and its present needs. The site of the proposed extension had been acquired through the generosity of an American lady, the late Mrs. Lorillard, who left a legacy of £10,000 to the hospital; £75,000 were now required to construct the necessary buildings. During the concert a collection was taken, which, as Miss Marie Tempest announced at the close of the entertainment, amounted to £300. The promoters of the concert and all who assisted in providing such an enjoyable Sunday afternoon are to be congratulated on the success of their efforts.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Jan. 19th.

SOCIAL EVENING:
At 8.30 P.M., Fellows, Members of Sections, and their friends will be received by the President, Sir StClair Thomson.
At 9.30 P.M. Miss Lena Ashwell will give an Address in the Robert Barnes Hall on the Drama as a Necessity of Civilised Life.
Sir T. M. Legge will give an exhibition of fifteenth century stained glass in the West Hall.
The Library will be open, and various objects of interest will be exhibited. Music, light refreshments, and cigarettes.

Tuesday, Jan. 20th.

GENERAL MEETING OF FELLOWS: at 5.30 P.M.

PATHOLOGY: at 8.30 P.M.
R. A. O'Brien and Miss B. F. Runge: The Testing of Anti-dysentery (Shiga) Serum.
J. A. Murray: Tar-carcinomata in Rabbit and Rat.
A. T. Glenny and C. G. Pope: Explanation of the Toxicity of Frozen Diphtheria Toxin-antitoxin Mixtures.
C. C. Okell and H. J. Parish: Results of some Further Dick (scarlet fever) Tests.

Wednesday, Jan. 21st.

HISTORY OF MEDICINE: at 5 P.M., at the Wellcome Historical Medical Museum, 54A, Wigmore-street, W.
Papers:
Mr. C. J. S. Thompson: Anatomical Manikins.
Mr. Alban Doran: Ancient Bed Bottles and Uroscopy.
Exhibits:
Mr. C. J. S. Thompson: Drawings and Specimens of Uroscopic Glasses.

Thursday, Jan. 22nd.

EPIDEMIOLOGY AND STATE MEDICINE: at 5.30 P.M.
Paper:
Dr. F. E. Wynne: Overcrowding and Epidemic Disease.

Friday, Jan. 23rd.

STUDY OF DISEASE IN CHILDREN: at 8.30 P.M.
Discussion:
On Pneumococcal Peritonitis, to be opened by the President, Dr. H. C. Cameron.
The following will also speak: Mr. George E. Waugh, Mr. John Fraser, and Dr. David Nabarro.

THE HUNTERIAN SOCIETY.
MONDAY, Jan. 19th.—9 P.M. (at the London Mansion House), Mr. G. Grey Turner: Perforation of Gastric and Duodenal Ulcers and After (Hunterian Lecture). To be followed by a Discussion.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.
TUESDAY, Jan. 20th.—8.30 P.M., Mr. F. Ll. Jones (H.M. Coroner for Flintshire): Laws of Nations and the Health of Nations: A Survey of International Health Activities Before and After the Great War. To be followed by a Discussion.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos-street, Cavendish-square, W.
FRIDAY, Jan. 23rd.—at 8.30 P.M., President's Address: The Value of the Scientific Outlook to the Worker in Venereal Diseases.
Papers will be read by Dr. Panton and Dr. Arnold Renshaw on the Vaccine Therapy of Gonococcal Infections.
A Discussion will follow.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.

MONDAY, Jan. 19th.—5 P.M., Sir Arthur Keith: Recent Discoveries of Fossil Man. (Hunterian Lectures.)

WEDNESDAY.—5 P.M., Lecture II.

FRIDAY.—5 P.M., Lecture III.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Jan. 19th, to SATURDAY, Jan. 24th.—WEST LECTURE HALL, Royal Society of Medicine, 1, Wimpole-street. Lecture arranged by the Fellowship of Medicine, and open to all members of the profession. At 5.30 P.M. Tuesday, Jan. 20th, Sir Arbuthnot Lane, Bt.: The Treatment of Fractures.—WEST END HOSPITAL FOR NERVOUS DISEASE, 73, Welbeck-street, W. Intensive course in the Diagnosis and Treatment of Common Diseases of the Nervous System. Daily, at 5 P.M., Lectures, including clinical demonstrations upon selected cases.—BETHLEM ROYAL HOSPITAL, St. George's Fields, S.E. Tuesday and Saturday, at 11 A.M., Lecture-Demonstrations by Dr. Porter Phillips and Dr. Thomas Beaton.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Jan. 19th.—12 noon, Mr. Simmonds: Applied Anatomy and Fractures. 2 P.M., Mr. Addison: Surgical Wards. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.

TUESDAY.—11 A.M., Mr. Endean: Venereal Diseases. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-patients.

WEDNESDAY.—12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Mr. Tyrrell Gray: Operations. 2.30 P.M., Mr. Donald Armour: Surgical Wards.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 11 A.M., Sir Henry Simson: Gynæcological Wards. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.

FRIDAY.—11 A.M., Dr. McDougal: Electrical Dept. 12 noon, Surgical Registrar: Surgical Pathology, 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Dept.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy, 10 A.M., Dr. Saunders: Medical Diseases of Children, 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

TUESDAY, Jan. 20th.—4.30 P.M., Dr. J. Metcalfe: The X-Ray Examination of Chest Diseases (lantern).

FRIDAY.—4.30 P.M., Mr. H. W. Carson: Prostatectomy: Its Indications and Contra-indications.

Daily, In-patient and Out-patient Cliniques, Operations, Cliniques in Special Departments, &c.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Jan. 22nd.—4 P.M., Dr. Frew: Tonsils and Adenoids.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.

TUESDAY, Jan. 20th.—5 P.M., Dr. H. W. Barber: The Erythrodermias.

THURSDAY.—5 P.M., Dr. Knowsley Sibley: Lupus Erythematosus.

ROYAL DENTAL HOSPITAL OF LONDON POST-GRADUATE LECTURES.

FRIDAY, Jan. 23rd.—5 P.M., Mr. J. G. Turner: Fundamental Facts of Dead Teeth and Methods Employed in Treatment.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)

MONDAY, Jan. 19th.—(At the Shaw-street Hospital.) Dr. Leith Murray: Diagnosis and Treatment of Salpingitis.

TUESDAY.—(At the Maternity Hospital.) Prof. Blair Bell: Uterine Inertia.

THURSDAY.—(At the St. George's Hospital.) Dr. Barendt: Skin Cases.

FRIDAY.—(At the Eye and Ear Infirmary.) Dr. C. A. Hughes: The "Red" Eye.

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE (at Whitworth-street West Branch).

FRIDAY, Jan. 23rd.—4.30 P.M., Dr. C. Paget Lapage: Pyloric Stenosis and Pyloric Spasm in Infants.

CLINICAL SOCIETY, Manchester.

WEDNESDAY, Jan. 21st.—4.30 P.M. (in the Medical Society's Reading Room), Mr. James Sherren: Acute Hæmatemesis and Melæna.

ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH.

TUESDAY, Jan. 20th.—4 P.M., Dr. Maitland Ramsay: The Eye and the Kidney. Discussion to be opened by Dr. A. MacGillivray and Dr. A. Sinclair.

THURSDAY.—(At the Royal Infirmary, Dundee), 4 P.M., Prof. Charteris: Demonstration of Kidney Cases.

Appointments.

BOWIE, E. ORMOND, L.A.H., D.P.H. Dub., has been appointed Medical Superintendent of Stretton House, Church Stretton, Shropshire.

DOUBLEDAY, F. N., L.R.C.P. Lond., M.R.C.S., L.D.S. Eng., External Examiner in Dental Subjects to the University of Bristol.

FAIRBANK, Sir WILLIAM, K.C.V.O., O.B.E., has been appointed Honorary Surgeon Apothecary to the King's Household at Windsor Castle.

SAWDAY, A. E., M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., Hon. Surgeon, Derbyshire Hospital for Sick Children.

STURRIDGE, F. R., M.R.C.S., L.R.C.P. Lond., a Member of the Honorary Medical Staff of the Willesden General Hospital.

King's College Hospital: DAY, HAROLD B., M.D. Lond., F.R.C.P. Lond., Lecturer in Forensic Medicine and Toxicology; LIVINGSTONE, J. L., M.B., B.S., Medical Sambrooke Registrar and Out-patient Medical Officer; EDWARDS, H. C., M.B., B.S., Surgical Sambrooke Registrar and Out-patient Surgical Officer; BICKERTON, J. M., M.B., F.R.C.S., Ophthalmic Registrar and House Surgeon to Ophthalmic Department; WALKER, V. D., D.S.O., L.D.S., Dental Registrar; COLLIS, W. R. F., M.R.C.S., L.R.C.P. Lond., CORY, J. W. E., M.R.C.S., L.R.C.P. Lond., CONNAN, P., M.R.C.S., L.R.C.P. Lond., KOHNSTAM, G. L. S., M.R.C.S., L.R.C.P. Lond., BROWN, W., M.D., D.Sc., M.R.C.P., HOPE, BARBARA M., M.R.C.S., JOHNSON, JOCELYN, M.R.C.S., LIGHTWOOD, R. C., M.D., ORNSTEIN, HELEN E., M.R.C.S., L.R.C.P. Lond., OSBORN, MURIEL M., M.R.C.S., REES, DOROTHY M., M.R.C.S., L.R.C.P. Lond., TURNBULL, MARY M., M.B., B.S., THOMSON, M. S., M.D., M.R.C.P., KENNEDY, D. A. D., M.B., Ch.B., DYER, R. H. M.R.C.S., ROPER, R. S., F.R.C.S. Edin., HYDER, L. I., M.R.C.S., L.R.C.P. Lond., WHITTINGTON, L. H., M.D., D.O.M.S., HICKLEY, A. H., M.R.C.S., L.R.C.P., GIBSON, J. MCCOY, M.B., D.O.M.S., BEEDHAM, H. W., M.B., D.O.M.S., BICKERTON, J. M., M.B., B.Ch., F.R.C.S., ANDREW, KATHARINE M., M.B., B.S., APPLETON, CONSTANCE E., M.R.C.S., L.R.C.P. Lond., D.P.H., MCILRAITH, C. H., M.D., WILSON, W., M.B., B.Ch., ADLINGTON, B., M.R.C.S., L.R.C.P. Lond., DAGGETT, W. I., M.R.C.S., L.R.C.P. Lond., SWINBURNE, S. C., M.R.C.S., L.R.C.P. Lond., WILES, MARY A., M.R.C.S., L.R.C.P. Lond., ROBINSON, G. W., L.M.S.S.A., MOODY, C. A., L.D.S., BRONSON, EILEEN M., M.R.C.S., L.R.C.P. Lond., MACDONALD, C., M.B., B.S., Miss MCLEOD, BELL, A. W., L.D.S., BENTLEY, A., L.D.S., BOETINS, F. R., L.D.S., CASELEY, ROSAMUND, L.D.S., DOWNING, F. J., L.D.S., SMITH, F. ELLIOTT, M.R.C.S., L.D.S., HOFMEYER, R., L.D.S., JACKSON, H., M.R.C.S., L.D.S., MARSH, L. R., L.D.S., RYLOTT, B. A., L.D.S., SCOTT, KEITH, L.D.S., WATSON, KATHLEEN M., L.D.S., Clinical Assistants: PERKINS, A. C. T., M.B., B.S., Senior Casualty Officer; READ, T. S., M.R.C.S., L.R.C.P. Lond., Second Casualty Officer; TOWNSEND, H. S., M.R.C.S., L.R.C.P., House Anæsthetist; LANE, C. R., B.M., B.Ch., Resident Asst. Clinical Pathologist; DUBUISSON, HELEN M., M.R.C.S., L.R.C.P. Lond., D.P.H., Resident Radiologist; WILKINSON, F. B., M.R.C.S., L.R.C.P. Lond., and STRAUSS, E. B., B.M., B.Ch., House Physicians; COVE-SMITH, R., M.R.C.S., L.R.C.P. Lond., ROBERTSON, L. D., M.B., B.S., B.Sc., HAMILTON, G. E. R., M.R.C.S., L.R.C.P. Lond., EDMUNDS, WINIFRED P., M.R.C.S., L.R.C.P. Lond., NEWMAN, C. E., M.B., B.Ch. Lond., and DULAKE, L., M.B., B.S., House Surgeons; STRANGE, F. O. T., M.R.C.S., L.R.C.P. Lond., Obstetric House Surgeon; CUFFEY, D. M., M.B., B.Ch., House Surgeon Aural and Throat Depts.; ASPLET, P. R., L.D.S., Dental House Surgeon.

St. Mary's Hospital: PHILLIPS, L. PENHALL, M.R.C.S., L.R.C.P. Lond., Medical Superintendent; HARRE, GERTRUDE E., M.B., B.S. Lond., D.P.H., Medical Registrar.

Vacancies.

For further information refer to the advertisement columns.

Blackburn County Borough.—M.O.H. and Sch. M.O. £1000.

Brentwood, Essex, High Wood Hospital for Children.—Jun. Asst. M.O. £500.

Bristol, Royal Hospital for Sick Children and Women.—Hon. P.

City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—H.P. at rate of £125.

Derbyshire Education Committee, Derby.—Asst. Sch. M.O. £600.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Asst. Path. £150. Also Asst. Anæsth.

Evelina Hospital for Children, Southwark, S.E.—H.P. £120. Also P.

Exeter, Royal Devon and Exeter Hospital.—M.O. in charge of Venereal Clinic. £400.

Freemasons Hospital and Nursing Home, 237, Fulham-road, Chelsea, S.W.—Election of the Medical and Surgical Staff.

Hospital for Sick Children, Great Ormond-street, W.C.—Cas. O. £400.

Hull Infectious Diseases Hospitals.—Res. M.O. £400 plus bonus.

Hull Royal Infirmary.—H.P. £200.

London Hospital, Whitechapel, E.—Gynæcological Reg. and Obstet Tutor. £400.

London Temperance Hospital, Hampstead-road, N.W.—Med. Reg. 40 guineas.

Manchester, Baguley Sanatorium.—Two Asst. M.O's. Each £350.

Manchester, St. Mary's Hospitals.—H.S. at rate of £50.

Metropolitan Asylums Board.—Director Pathological Services. £1100. Also Director Diphtheria Antitoxin Establishment. £900.
Metropolitan Ear, Nose, and Throat Hospital, 2, Fitzroy-square, W.—H.S. £150.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Radiologist. 150 guineas.
National Hospital for the Paralysed and Epileptic, Queen-square W.C.—Hon. Anæsthetist.
Nottingham General Hospital.—H.S. at rate of £150.
Royal Free Hospital, Venereal Diseases Dept., Gray's Inn-road, W.C.—M.O. First Asst. £550. And Second Asst. 5 guineas weekly.
St. Mary's Hospital for Women and Children, Plaistow, E.—Hon. Asst. P.
St. Mary's Hospital, W.—Asst. Pathologist. £500.
Seamen's Hospital Soc., Dreadnought Hospital, Greenwich.—P.
Sheffield, Jessop Hospital for Women.—Surg. Reg.
Staffordshire Education Committee.—Asst. Sch. Med. Insp. £600.
Wakefield, Clayton Hospital.—Second H.S. at rate £175.
Wakefield, Middleton-in-Wharfedale Sanatorium, near Ilkley.—Asst M.O. £500.
West London Hospital, Hammersmith-road, W.—Hon. Med. Registrar. £100. Also Hon. Obstet. Reg.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Patterdale, Westmorland; and Great Wakering, Essex.

Births, Marriages, and Deaths.

BIRTHS.

ASKHAM.—On Jan. 3rd, at Laughern House, Pershore, Worcs., the wife of Hugh Lowrie Askham, M.R.C.S., L.R.C.P., of a son.
HUGHES.—On Jan. 6th, at London-road, Northfleet, the wife of Dr. F. M. Hughes, of Walmer, of a daughter.
PARRY.—On Jan. 4th, the wife of Dr. Parry, "Brindisi," East Sheen, of a son.
WHITTINGTON.—On Jan. 2nd, the wife of Theodore H. Whittington, M.D., "Oakfield," Carshalton-road, Sutton, of a son.

MARRIAGES.

BEVAN BROWN—YOUNG.—On Jan. 3rd, at All Saints Church, Foots Cray, Charles Maurice Bevan Brown, M.D., M.A. Camb., to Elsie Muriel, elder daughter of Mr. and Mrs. J. W. Young, of "Dunelm," Sidcup, Kent, and granddaughter of the late William Davidson, B.A., of Morpeth, Northumberland.
WEBBER—RYDER.—On Dec. 23rd, at the Church of St. Simon Stock, Putney, Harold Norris Webber to Madeleine Mary Ryder.

DEATHS.

COLLINS.—On Jan. 4th, in a nursing home, at Montreux, Switzerland, Edward Walfenden Collins, M.A., M.D., F.R.C.S., aged 79.
DIACK.—On Jan. 5th, at 43, Gloucester-gardens, Hyde Park, W., Patrick W. Diack, M.A., M.B., C.M.
MCNEILL.—On Jan. 9th, at Montague House, Bridlington, Duncan McNeill, M.B., C.M.
SWABEY.—On Jan. 10th, at Belgrave-road, Bath, Lieut.-Colonel Louis William Swabey, R.A.M.C. (retd.), aged 68.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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Notes, Comments, and Abstracts.

MORTALITY FROM MOTOR-TRAFFIC: ITS CAUSES AND PREVENTION.

BY R. T. WILLIAMSON, M.D., F.R.C.P. LOND.,
CONSULTING PHYSICIAN, MANCHESTER ROYAL INFIRMARY.

THE mortality caused by motor vehicles now forms an important chapter in forensic and State medicine, and deserves much greater attention than it has hitherto received. In England and Wales the deaths caused by motor vehicles have greatly increased in number during the last 12 years. In the reports of the Registrar-General we find that the total number of accidental deaths from (1) "railways," (2) "other vehicles mechanically propelled," and (3) "horse-drawn vehicles and horses" has increased from 2140 in 1911 to 3224 in 1923. Whilst the deaths in Groups 1 and 3 have diminished in number, those caused by "vehicles mechanically propelled" (Group 2) have increased from 741 in 1911 to 2151 in 1923, and are now three times more numerous than those in Groups 1 and 3 combined. The "vehicles mechanically propelled" are chiefly motor-cars, motor-vans, motor-cabs, motor-omnibuses, motor-cycles, and electric tramcars. Considered in detail, the following table of figures, taken from the Registrar-General's reports, shows the number of fatal accidents caused by various forms of motor vehicles in the three years 1911, 1912, and 1913, and in the three years 1921, 1922, 1923 (in England and Wales).

Table showing Number of Fatal Accidents Caused by Various Forms of Motor Vehicles.

Year	1911	1912	1913	1921	1922	1923
Motor-car	286	377	455	695	751	834
Motor-van and lorry	69	81	132	499	551	563
Electric tramcar	52	39	41	55	77	80
Motor-cab	95	74	73	85	51	50
Motor-omnibus	121	192	220	133	166	219
Motor char-a-banc, coach, &c.				38	23	44
Motor-cycles	31	66	101	226	214	296
Motor collisions				130	118	162

The fatal accidents from bicycles and tricycles have not increased in the periods mentioned.

Thus the statistics show that the increase in the number of fatal accidents has been caused chiefly by motor-cars, motor-vans and lorries, and motor-cycles. In comparing the years 1911 and 1923 we see that in the latter year the fatal accidents caused by motor-cars were nearly three times more numerous, those caused by motor-vans eight times more numerous, and those caused by motor-cycles over nine times more numerous than in 1911. In addition, there are accidents (very much more numerous) from motor traffic which are not directly fatal. Even if it should be possible to prevent any further increase of this mortality (which is not likely), the total number of fatal accidents from motor traffic during the next ten years will be over 24,000 in England and Wales. And yet if from the upper windows of a high building in any large town we watch the motor traffic at a place where several streets or roads meet, we are apt to wonder, not that accidents often occur, but that they are not 100 times more common.

I.—*Some Causes of Motor Accidents.*

While some motor accidents are practically unavoidable, as the price we must pay—or make others pay—for the advantage or pleasure of travelling at a very high speed, there are many which ought not to occur. Some of such accidents are due to physical failings of the motor-driver. Of these, we need mention only a few; for example, marked defects of sight and hearing, liability to sudden attacks of illness of various kinds—cardiac failure, from aortic regurgitation or cardiac muscle disease, major and minor epileptic attacks, angina pectoris, rupture of an aneurysm, and internal hæmorrhage of various kinds. Motor vehicles are dangerous weapons; and those who handle them should not be suffering from ailments which might suddenly cause loss of control of the motor vehicle.

In a letter to THE LANCET about a year ago (1923, ii., 1377) I mentioned the case of a taxi-driver who consulted me, and admitted that it was no longer safe for him to drive a motor vehicle on account of the condition of his nervous system. He had a definite history of syphilis, and after careful examination I came to the conclusion that he was suffering from general paralysis of the insane at an early stage. His list of collisions with pedestrians was a long one, and some he had injured very seriously. I urged him to discontinue his occupation at once, but he was still driving a taxi-cab some months later.

Two recent examples may be given of the risk to pedestrians through the sudden illness of motor-drivers: (1) Whilst driving in a busy street the driver of a taxi-cab suddenly collapses through illness. The taxi-cab crashes over the footpath into a shop window, knocking down and seriously injuring a pedestrian on the footpath. The taxi-driver is taken to the nearest hospital, but dies before the hospital is reached.

(2) The conductor of a motor-omnibus finds that the driver fails to stop when he rings the bell. He then discovers that the driver has fallen off (through illness) and that the bus is dashing along unguided. With difficulty the bus is stopped, and the driver is afterwards found unconscious on the road.

Reckless Driving.

Accidents are occasionally due to the mental attitude of some motor-drivers, who appear to think that if pedestrians are not on the footpath, the driver is not responsible if an accident should occur. But in England pedestrians have still the right to use the road as well as the footpath.

It was formerly my lot to use taxi-cabs and hired motor-cars extensively. Many of the drivers thereof were gentlemen in the truest sense of the term. I have been greatly indebted to their services in remote parts of the country and often at late hours of the night; and the majority were careful and excellent drivers. But I had to cease to employ a few on account of what appeared to me to be reckless driving. Some drivers are incompetent on account of their temper or excitability, or because they fail to realise what a terrible weapon they have to control. Having never killed anyone, in course of time the fear of accidents becomes less and less, and an unjustifiable self-confidence may develop. The risks from taking alcohol are now fully recognised and the sequelæ are demonstrated daily in our newspapers.

Many motor-cars are almost noiseless in their approach, and fatal accidents may occur because the driver fails to sound his horn or hooter. Other causes of accident are very narrow streets or footpaths, lack of warning notices at dangerous parts of the road, the playing of children in the streets, dazzling headlights at night, and so forth.

II.—*Prevention of Fatal Accidents.*

After this brief survey of some of the causes of fatal accidents we are faced with the question—What can be done to diminish this mortality? Better mechanical construction may in the future very slightly diminish the number of fatal accidents; but so long as motor vehicles dash along at the high speeds which are now so common many accidents are unavoidable, since it is often impossible to check the speed suddenly. Those who will be responsible for the future regulation of motor traffic will have to consider if it is desirable to diminish the speed limit with the object of possibly saving some of the 2400 who are now being sacrificed yearly; or if the sacrifice of these lives is a fair price for the advantages or pleasures of very rapid transit. The maximum speed limit of motor-bicycles appears to be deserving of special attention, and pillion-riding should be forbidden. In view of the rapid increase of the number of motor vehicles, it will soon be necessary either to restrict their number or to construct special roads for them in our largest towns.

Medical Examination of Motor-Drivers.

The question which especially deserves the attention of the medical profession at present is the medical examination of drivers of motor vehicles. Is it not most desirable that they should be required to present a medical certificate that their sight and hearing are not too defective, and that they are not suffering from any ailment which might render them suddenly unable to control their vehicles? Medical examinations are required for the army, the teaching profession, and numerous occupations, for various reasons; and surely it is desirable for those who have to control such a dangerous weapon as a motor vehicle—when sudden loss of control thereof may mean the death of a human being. Most motor-drivers would be quite willing to take all risks as regards their own lives; but it is not fair that the lives of pedestrians, and of those who travel in motor vehicles should be endangered. Medical examinations would, of course, have to be repeated periodically. If such examinations should ever be made compulsory, it is to be hoped that the payment for the certificate would, in the first place, be required from the motor-driver and not from the employer. This would increase the value of the examination as a means of impressing caution. Motor-drivers should abstain from alcohol during their hours of duty, and should be required to produce a certificate that they are temperate as regards alcohol (if not total abstainers).

The Sense of Responsibility.

In the newspapers we read of another "fatal motor accident"; but we read nothing of the prolonged mental anguish, of the distress and sorrow, caused to the relatives of those killed. We read nothing of the mental distress suffered by the driver of the motor vehicle which has caused the fatal accident, or of the anguish of the owner of the vehicle. But these cases are very numerous and the writer has met with many distressing instances. Some motor-drivers consider such questions. Some do not. Too often they are considered first after a fatal accident has occurred. Something is needed to increase the sense of responsibility—some psychological stimulus. A fine might do this. It usually takes two to make an accident when a pedestrian is killed by a motor vehicle; and it is often impossible to say how much blame should be attached to the pedestrian and how much to the motor-driver. Often neither is quite blameless. But frequently all the blame is attached to the pedestrian and none to the motor-driver. The pedestrian pays for his (?) failing with his life and the motor-driver is very often exonerated from all blame. If motor-drivers were fined for every fatal accident, whether blame could be attached to them or to those killed, this would, of course, be regarded as an unjust rule by many; but it would tend to diminish fatal accidents, and to increase the sense of responsibility. Such fines might be handed over as contributions to the needy hospitals which have to treat so many victims of motor accidents free of charge.

The Sins of the Pedestrian.

Unquestionably, in some cases the pedestrian is chiefly at fault. It is astonishing to meet, in the centre of London, men who are quite blind and alone—men who daily traverse some of the busiest streets and have to be led across the streets by kind passers-by. Many accidents happen to pedestrians because they are absent-minded, or absorbed in thought, and sometimes pedestrians are definitely reckless. Pedestrians should use the same caution in stepping off the footpath as they would use in crossing a railway line. Those who have marked defects of sight or hearing, those who are partially paralysed or ataxic, those who are liable to sudden attacks of illness (minor or major epilepsy, cardiac failure, &c.), and the aged and feeble should not walk alone in roads or streets through which motor vehicles frequently pass. With the steady increase of motor traffic, it may soon become necessary, in the busy parts of large towns, to permit pedestrians to cross the streets only at definite points, controlled by the police. Newspapers might give much assistance by publishing fuller details of motor accidents. To many it will appear that, in the past, coroners and magistrates have often failed in their duty to the public with respect to motor accidents.

The preceding remarks may be considered by some readers as suggestions for meddlesome and unnecessary interference with motor traffic; but if such readers should later have the misfortune to kill a pedestrian by their motor vehicles, they will then probably think otherwise, even if they themselves should be blameless as regards the accident.

HEALTH CONDITIONS IN BARBADOS.

A REPORT prepared by Mr. W. E. Jackson, C.M.G., Acting Governor, and dated Sept. 10th, 1924, has been received at the Colonial Office and presented to Parliament. It states that the population on Dec. 31st, 1923, was estimated to be 158,146, but as this estimate depends on emigration and immigration figures, which experience has shown to be often seriously inaccurate, not much reliance can be placed upon it. According to the census of 1921 the number of whites was 10,249, mixed 34,216, and blacks 111,677. Owing to emigration the population has declined steadily during the last two decades, though its numbers are still considerable for so small an area—940 to the square mile. Since the opening of the Panama Canal the habit of emigration has taken firm hold among the younger and more enterprising sections of the people, though it has never again reached the proportions of the Panama Canal construction period. Emigration to the United States has in recent times been the most popular, and during 1923 showed a steadily increasing tendency, over 2000 persons having left for New York. The effect of the constant withdrawal of so large a number of the younger and more vigorous members of the community, especially the younger men, is beginning to make itself felt. The birth-rate during the year was 37·44 per 1000 and the death-rate 37·11. The percentage of illegitimate births was 70·1. Up to the present there has been no registration of the causes of death in this colony, so that it is impossible to form a confident opinion as to the true causes of the unfortunately high death-rate. Ages are, however, recorded in burial certificates, and indicate that the largest factor is the deplorably high rate of infant mortality. The number of infant deaths per 1000 births during the last five years has been: 1919, 352; 1920, 220; 1921, 401; 1922, 187; 1923, 371. The causes of this high mortality are a subject of controversy, but it is generally admitted that improper and inadequate feeding is very largely responsible.

According to the census of 1921, the disproportion between males and females of the fertile ages was very great, the number of males between 15 and 50 years of age being 26,864 and the number of females 49,531. So grave a disproportion can scarcely fail to have marked social effects, and it seems probable that it must be a factor contributory towards the high rate of infant mortality. In the absence of accurate mortality statistics, however, it is impossible to speak with confidence. It is satisfactory to be able to report that an Act providing for the registration of causes of death has now been placed on the Statute Book, and will shortly be put into effect.

Epidemic Disease.

It is a fact that Barbados enjoys natural and climatic advantages from a health standpoint, such as can scarcely be found in any other tropical place. Malaria is unknown, there are no extremes of heat or cold, the soil is well drained, and the water-supply unexceptionable; it is, moreover, constantly swept by the trade winds. In these circumstances it is an unusually healthy place of residence for all who are able to secure for themselves reasonable freedom from insanitary surroundings. The diseases of insanitation, however—viz., enteric fever and dysentery—are unfortunately common. The number of cases of enteric fever notified during the last five years has been: 1919, 508; 1920, 1012; 1921, 3070; 1922, 1084; 1923, 735. The serious epidemic of 1921 fortunately subsided to some extent during 1922, but the conditions favouring the spread of the disease still remain. The ordinary type of enteric fever encountered is of a mild character. Proposals for a comprehensive review of the system of public health organisation have been placed before the legislature. The question is one which is full of more than usual difficulty, owing to the density of population and existence of vested rights, but the high and fluctuating death-rate, combined with the undue prevalence of enteric fever, indicates unmistakably that improved sanitary methods are an urgent need. Apart from the conditions above referred to, the island is exceptionally healthy and remarkably free from epidemic disease. A venereal disease clinic established at the General Hospital in 1922 has been attended by steadily increasing numbers. Subsidiary clinics in other parts of the island are much needed. The treatment of inmates of the Leper Asylum with ethyl esters of chaulmoogra oil has been continued with very hopeful results in a number of less advanced cases. It is anticipated that it may be possible to discharge some of the inmates so treated during the current year. The colony is, on the whole, well provided with curative and remedial institutions.

Climate.

Barbados is by its natural and climatic conditions the healthiest of all the West Indian Islands, and is much patronised by residents in neighbouring colonies as a health resort. The anopheles mosquito is not found in the island. This is a somewhat curious fact, since it is certain that they must be imported not infrequently in vessels which, in many cases, lie in the "careenage" or inner harbour for considerable periods on arrival from places where they are prevalent. The conditions, however, are evidently unfavourable to their breeding ashore. The hot and rainy season lasts from the beginning of June to the beginning of November. The island gets the full benefit of the north-east trade winds, and between November and May the night temperature sometimes falls as low as 64° F. For the greater part of the year the temperature is delightfully equable, and the heat is seldom oppressive. Few places, indeed, enjoy a more pleasant climate. The winter months are regarded as the tourist season.

ARGENTINE LEGISLATION WITH REGARD TO ABORTION.

Dr. Jose C. Belbey, director of the practical work of legal psychiatry at Buenos Aires, draws attention in *La Semana Médica* of Oct. 2nd, 1924, to what he holds to be certain defects and contradictions in the Argentine code. (1) The penalties for abortion are greater than those for infanticide, a manifest injustice. (2) The law permits abortion in the case of a lunatic or idiot with the consent of the legal representative of the woman but not in the case of a sane woman who has been violated; he considers that this should be recognised as legal. (3) He approves of the provision which makes a mere attempt by the woman not a legal crime on the ground that society does not suffer and that harm may be done by making a scandal public. (4) Owing to the provision in law that, if a crime is impossible it cannot be punished, it is very difficult in some cases to convict any abortionist, because unless the woman who gives the information is pregnant, the case falls to the ground. He gives an actual instance where the police were baffled by this provision of the criminal code.

That the penalties for practising abortion are lighter in the Argentine than in this country is shown by the fact that the author quotes with approval the provision which disqualifies from practice for a time double that of the imprisonment inflicted, all doctors, midwives, or pharmacists who are convicted of the crime, the previous code had disqualified them only for a term equal to that of their imprisonment. In this country the removal of the name from the Register permanently, though not enacted by statute, is carried out by the General Medical Council as a matter of course after conviction.

THE WORLD'S GREATEST NAMES.

WE have received from Fort Dunlop, because "it is thought that this item of news may interest the readers of your journal," a note to the effect that the following names—Luther Burbank, Thomas A. Edison, and John Burroughs—are to be engraved on the façade of the offices and laboratories in Dearborn. The idea of Mr. Henry Ford, to whom the premises belong, has been to commemorate on his buildings the world's greatest people, and we learn that the first attempt to ascertain their identity resulted in the following list of 18 names in addition to those selected: Darwin, Devinci (sic), Fulton, Bell, Wright, Diesel, Curie, Newton, Pasteur, Ampere, Franklin, Whitney, Marconi, Kirby, Faraday, Otto, Dunlop, and Galileo. The buildings are Mr. Ford's and he can decorate them as he likes, but if he can make the educated world believe that—say—Galileo, Newton, Pasteur, Darwin, and Marconi ought to give place to a couple of field-naturalists and the inventor of the megaphone, he will be a very persuasive person. Probably he is.

THE ANTISEPTIC VALUE OF TOOTH PASTES.

To the Editor of THE LANCET.

SIR,—In your issue of Dec. 13th, 1924, p. 1266, you reviewed a paper by Mr. A. E. Parkes and Mr. A. A. Maddy, which appeared in the *Pharmaceutical Journal*, Nov. 8th, p. 563. In the course of your review it is stated: "The pastes were investigated for their antiseptic properties and the results were to show that in practically all cases *the claims made by the makers are grossly exaggerated.*" This is surely not in accordance with the facts. Actually, in the original paper, the authors state: "With respect to the samples examined, an inspection of the literature and advertisements revealed the fact that in only *one* instance was any mention made of the antiseptic strength of the paste, *and this was found to be substantially correct.*" The italics are ours, and we feel that you will wish to correct a statement which is as unjust in its condemnations as it is incorrect in fact.

In the absence of definite reference to any particular makers scathing criticism such as that in your review reflects alike on all manufacturers, and we would ask your permission to state in these columns that for some years past we have claimed a definite phenol coefficient for the tooth paste of our manufacture. Each batch of Euthymol Tooth Paste is required to show a *minimum* phenol coefficiency of 0·14 when tested on the *B. typhosus*, which coefficient is not materially reduced by the presence of saliva and organic matter such as is normally present in the mouth. Moreover, independent bacteriologists have found that a 20 per cent. dilution of this paste is fatal to the *B. acidophilus odontolyticus* and the *Bacillus mesentericus*, within the space of *thirty* seconds—a fact which is in striking contrast to the statement in your review that "As tooth paste remains in contact with the teeth for a few seconds only, it seems clear that the paste even in an undiluted state can have little, if any, effect upon the germs of the mouth."

We are, Sir, yours faithfully,

London, W. 1, Jan. 8th, 1925. PARKE, DAVIS & CO.

*** The number of different makes of tooth paste on the market probably runs into four figures; the authors of the paper reported on 12 only. Their findings fully justify the general conclusion that the claims made by makers are exaggerated, but the condemnation obviously does not apply—nor does our abstract suggest that it does—to the few cases in which reasonable claims are made. None of the pastes examined was identified by name, and the only evidence that the paste to which attention is now drawn by the makers of it was examined was in the authors' preliminary remarks to the effect that they selected the most popular. Admittedly this product passes the test of popularity—and deservedly so. —ED. L.

Mrs. F. G.—It is not, we believe, the practice of physicians here to send their neurotic patients to British Columbia with the assurance that they will there get the necessary rest for their nerves.